

31ST EDITION

NOVEMBER 2022



Abhyudaya

Reliving the Legacy



INDUSTRY 4.0 & 5G^{IN} AGRI-FOOD SECTOR

This Issue

Words from the Editor's desk...

Awaken your spirit to adventure,
Hold nothing back,
Learn to find ease in risk;
Soon you will be home
In a new rhythm,
For your soul senses
the world that awaits you.



With the lines of John O'Donohue, CORNquerors heartily wish PAVrangers their successful professional beginnings and welcome samuRYES to the light of the beautiful family CSIR- CFTRI.

Dear PAVrangers, the lovable memories you made with us will be preserved and relished. It's hard for the garden of CFTRI to leave its flowers outside but it gets its pride by letting the world enjoy the fragrance. Every ending is the beginning of greater stories and all prayers from our side for long life, success, love, and happiness.

To all distinguished readers,
On behalf of Abhyuday, I humbly present you to the 31st edition of the magazine put together by the 57th batch of M. Sc. Food technology, the "CORNquerors"

It's the phase to dive into "Industry 4.0" thus leveraging its potential by 5G will transform the agro-food industry
Bite the taste of grain-free biscotti and enjoy the year's new releases in the "INDUSTRY BUZZ"

We take you to your memorable days at CFTRI in "KAMPUS KHABAR"

Boost up your health with exciting products of "RAW PRESSERY" in the "FOOD INCORPORATED"

Enjoy the deliciousness of diseased corn in "WHAT THE FOOD"

Lose yourself with beautiful days of Miss. Preeti Tyagi at CFTRI refurbishing your memories in "ALUMN COLUMN"

Do you believe Data analysis is going to be the future of the business environment? Explore the world of Data Analysis with its powerful tools in "CAREER CORNER"

Let's congratulate PAVrangers for stepping into the industrial world in the Placement section

Refresh your views with the aesthetic arts of our hostel inmates in the "Kalakriti"

Feeling bored, brainstorm yourself by solving the Games Section

Get mesmerized by the evocative clicks of the campus in the Photography section

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Regards
BHARAT J

About Abhyuday.....

Emerging as a pioneer in food research in 1950 and continuing to provide an impetus to the food and allied sectors, CFTRI is the backbone of food-based scientific as well as industrial developments in India. The genesis of Abhyuday owes itself to the heritage that was created by the great minds that have been a part of this institution ever since the beginning and emerged from here as successful individuals spreading the glory of this place far and wide.

Abhyuday is a Sanskrit word which means beginning or awakening...

Awakening for re-inventing the vigour and strength by breaking away from the shackles of mediocrity and sombreness...Awakening for being the change and leading the way...

The e-newsletter, it is expected, would try and achieve its goal of promoting dissemination of the right and benign knowledge and act like an umbilical cord that would keep us connected to our mother institution.

Industry Buzz will include the past months developments in food industry viz. M&A, new product launches, new market entrants, market reviews, inventions and innovations etc. The Cover-Story will track one most important development of the month in the food industry with a detailed analysis from all the quarters. What The Food! will shed light on the interesting and lesser known facts about food. Kampus Khabar will attempt to track the campus news, developments, conference and seminars, tech-talks by our alumni. Career Corner would be the space where articles related to interpersonal and communication skill development, interview etiquette, CV writing skills etc. would be stressed.

The most exclusive of all the sections would be the Alumn Column which will feature technical articles, literary and artistic works, tweets and blogposts, creative and memorable contributions by our distinguished alumni. Also, we shall run a feature on one prominent CFTRIian in any field in each edition.

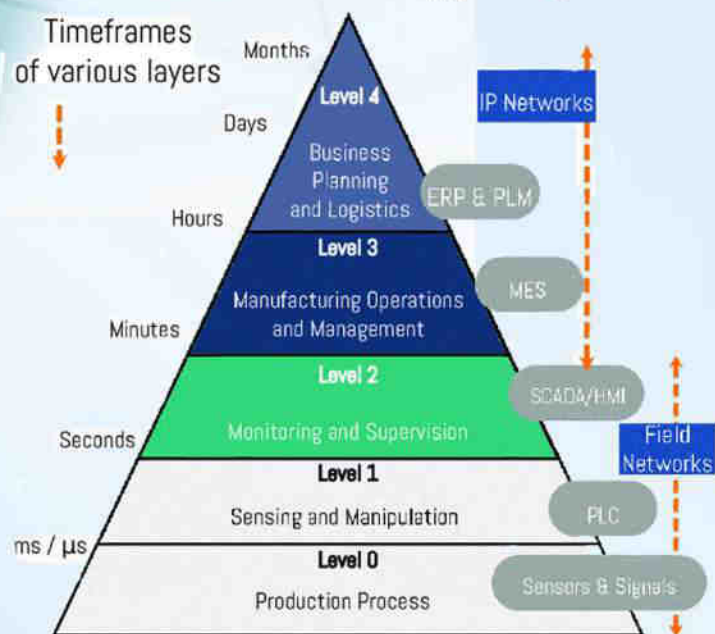
Besides, updates regarding upcoming seminars and events, congratulatory messages on birthdays and anniversaries, placements and promotions of alumni will also be featured. Advertisements from industries and entrepreneurs will also be featured for free. With a view to ensure the involvement of the readers and make the experience worthwhile, some games like crosswords, food quiz, jigsaw puzzles, riddles etc. would also be incorporated.

INDUSTRY 4.0 AND 5G IN AGRI-FOOD SECTOR

Disruptions are inevitable in any field and the food industry is not an exemption from it. Digital disruptions in the food industry sound new but are expected to create a great impact on the Food supply chain. To understand the need for this digital disruption it is essential to understand the factors that drive the need. The Global trends show that the food value chain is impacted by consumer-driven products, the demand for traceability and transparency, ongoing climate change, environment-sustainable products, and increased urbanization. **Building a digital agrifood-based bio-economy will deliver opportunities to reduce environmental impact, open new markets, increase productivity and profitability, and drive a sustainable agri-food sector that will meet the “perfect storm” challenges.**

The transition from Industry 3.0 to 4.0

To understand the power of 4.0 tools, we need to understand what industry 3.0 is. Industry 3.0 mainly deals with automation. The automation pyramid goes like this.



To put the process in brief, the process starts from PLC (Programmable Logic Controller)/HMI (Human Machine Interface) where it collects data about the process parameters like temperature, speed of the conveyor, etc. Then a number of systems will be there on a production floor which is in turn controlled by the SCADA (Supervisory Control And Data Acquisition). This is further fed to the MES (Manufacturing Execution System) which collects and presents data on availability, quality, and performance which determines the overall equipment effectiveness (OEE), and is used to execute the work orders and schedules generated from the ERP (Enterprise Resource Planning). ERP in short is used at CEO and managerial level to plan the complete business process including purchase, finance,

production, inventory, and marketing. The limitation of this system is that it gives data for visualization of the process, but the decisions or actions for any deviations are human-dependent and not transparent.

To explain with a quick example let us assume the performance of the particular line is low, generating the low output is visible through the MES and the operator decides to increase the speed of the line to get the required production as said in target by ERP but it might result in the generation of waste



and inefficient use of raw materials. The operator has no options to decide optimization point rather he doesn't know the cost of raw materials which is available in ERP. People operating ERP don't have any idea of production and its control. This translucent nature of the system demands the need for a robust tool called IIoT (Industrial Internet of things). It connects all the above-said systems through a cloud, where the data is stored, analyzed, and processed by machine learning algorithms for optimal decisions. In the aforesaid example, the machine with the help of previous data collected year after year identifies the pattern and provides the optimal speed at which the line has to be operated. Though conventional systems like SCADA and MES have data storage facilities, it is limited and restricted to visualization rather than the interpretation by the system.

Industry 4.0 in Agriculture

Climate change is real now and it has started affecting the agricultural sector greatly which is evident by the reduction in wheat production in the year 2021-22 due to unprecedented heat waves in India. To mitigate climate change, approaches like climate-smart agriculture and precision agriculture are developing.

The tools of Industry 4.0 can leverage these approaches by providing well-informed decisions. Novel approaches to data analysis and access are promoting aerial (using drones)

and satellite monitoring of crops and pasture for advanced condition forecasting, together with 3D modeling of environments, augmented reality systems for effective visualization and interaction with this data, together with easy to use apps. It should be noted that digitization should be accompanied by a development in biotechnology and animal sciences for efficient collection and understanding of data. The technology adoption is found to be familiar to the horticultural and farm management sector.

5G-powered Smart Farming



Leveraging the potential of the food supply chain:

Wastage is an age-long concern in food processing. This is attributed to poor demand forecasts and poor supply chain activities. The problems in the supply chain are real-time tracking of goods, consumers' patterns of buying, and their market demand. Though we have data on traceability and sales that are not real-time and digitized which makes it difficult to be used for analysis. IIoTs combined with AI provides facilities for real-time data collection, big-data analysis, identifying patterns, and providing better forecast and information on the supply chain. Food supply chain operations are an ideal fit for future practice in the IoT, which leverages smart sensors and actuators to connect humans and

machines (inspection systems, food processing equipment, or other data capturing devices along the food chain) by using the internet. The technology can be exploited in formulating ingredients for the product which reduces product trials and human intervention in the system. For example, a novel AI/machine learning system (IBM and McCormick & Company) was developed to predict the ratio of ingredients, and alternative flavor substitutes and fine-tune flavor pairing, so that product developers can speed up the flavor creation process using machine learning algorithms to sort through hundreds of thousands of raw material combinations.

Digital traceability and food safety

Recent surveys have shown that consumers are more concerned about the food they consume. The concern is not just only on the safety, quality, and nutrition but also on the ethical production of their foods. They are ready to neglect the food that comes from certain provenance where food is produced by child labor and slaves. IIoTs and Blockchain technology can be a better solution for this. The concern raised with IIoTs is the security of the information that is transferred for which the decentralized and immutable nature of



the Blockchain technology will be one of the solutions. This increases transparency, threat detection and ensures food safety compliance, and reduces product recalls.

The Role of 5G

In industry 3.0 the communications between machines are mostly through hardware like Ethernet cables. But in IIoTs as the name suggests the communications take place through the internet. To serve the purpose of real-time data transfer a robust media is needed which is 5G (5th Generation). It can handle a high volume of data with peak data transfer rates of 20 Gbps and 20 times faster than 4G. 5G will enhance the impact by manifolds due to low latency, high bandwidth, and support for many simultaneously communicating sensors. Recently, in the third edition of TechBharat 2022 held at CSIR-CFTRI, of State for Skill Development and Entrepreneurship said that the implementation of IIoTs in agriculture is expected to take place after the advent of 5G in India. 5G is a technology that is not just for mobile connectivity but has a potential application and great driver for Industry 4.0.



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INDUSTRY BUZZ

Eat Greater Goods launches grain-free biscotti



Gluten-free baked products are one of the mainstream products in the market. Ever heard of grain-free biscuits? Yes, Eat Greater Goods will be launching with three product lines - crackers, cookies, and biscotti - all boasting the company's almond flour-based, grain-free and vegan ingredients. Upon launch, Greater Goods is the only US brand that offers certified organic almond-flour-based products and will offer the world's first commercially available grain-free biscotti. The use of almond flour in formulating the products makes them a rich source of antioxidants and minerals. It uses tapioca as a starch source along with arrowroot powder. It uses natural essential oils as flavoring agents

Lil'Goodness launches India's first Prebiotic Cocoa Powder



Lil'Goodness, the health-focused food and snacking brand, has introduced zero added sugar Prebiotic Cocoa Powder first of its kind in India. The Prebiotic Cocoa Powder contains fat-reduced cocoa powder (99.98%) derived from ethically grown cocoa and naturally derived Fructo-oligosaccharides (3%). Although cocoa doesn't provide any exceptional gut health benefits, the presence of natural prebiotic fiber improves gut health, aids in digestion, and improves absorption of minerals and vitamins.

Mycorena's Promyc – A fungal-based alternative protein



Mycorena is a food tech company that works with fungi technology to create products and processes that will major impact the global sustainability challenges. Promyc has neutral color, taste, and smell. Promyc is a sustainable mycoprotein ingredient that can be used to produce vegan food products and brings a great source of fiber and protein, nutrition, and healthy vitamins while offering a great texture. Promyc is a sustainable mycoprotein ingredient that can be used to produce vegan food

products and brings a great source of fiber and protein, nutrition, and healthy vitamins while offering a great texture. Many of the vegan protein complexes have their characteristic sensory properties which make them difficult to be meat identical. However, mycoprotein can deliver uniquely neutral taste profiles compared to plant-based protein due to cellular structure, and texture obtained from different fungal mycelium production techniques. Further more due to the scalability of fermentation processes and efficient growth of fungal organisms the cost efficiency of this process benefits technology scaling and development and can offer real price competitiveness with the meat industry.

India's first FSSAI-certified paan brand, The Betel Leaf Co launches in Delhi



The Betel Leaf Co, the first FSSAI-certified Online B2C paan company in India has recently made its way into the Delhi NCR market. The company ensures the products are 100% tobacco-free, suitable for all ages, and delivered right to one's doorsteps to bring in the legacy of a historic tradition of eating paan post meals on an Omni channel retail format. The Betel Leaf Co is creating a niche product in the industry which may as well lead to it being one of the few unicorn start-ups available in Bangalore, Mumbai, Chennai, Pune, Hyderabad, Mysore, Vizag,

Ahmedabad, and now in Delhi and Gurgaon, they look to introduce their products pan-India to be forerunners for the revolutionized paan scenario. Maintaining the authentic taste of paan, Betel Leaf has combined technology and tradition with tried and tested recipes to ensure that taste the same each time.

FSSAI POLICIES AND REGULATIONS

30th August 2022

FSSAI published FSS (Foods for Infant Nutrition) First Amendment Regulations, 2022.

FSSAI published Food Safety and Standards (Foods for Infant Nutrition) First Amendment Regulations, 2022. These amendments will come into effect from 1st October 2022. The amendments include the revision of the requirement of Vitamin B12, the condition for naming the product as “Infant Milk Food” and recommended maximum level of usage of packaging gases (Carbon dioxide and Nitrogen) in the product.

31st August 2022

FSSAI published a Gazette notification regarding the requirement of BIS certification mark for Infant Nutrition products.

FSSAI published a gazette notification regarding the Food Safety and Standards (Prohibition & Restriction of Sales) First Amendment Regulations, 2022. As per the amendment, no person shall manufacture, sell, store or exhibit for sale food for infant nutrition, except under the Bureau of Indian Standards (BIS) Certification Mark, wherever BIS standards are applicable. This amendment will be effective from 1st April 2023.

18th August 2022

FSSAI Advisory: Clarification on requirement of AGMARK certification for imported food products.

FSSAI issued a clarification regarding the requirement of AGMARK certification in case of imported food products. In consideration of representations received from various stakeholders, FSSAI decided to keep in abeyance the requirement of AGMARK certification for Imported Food consignments, and also the advisory regarding the requirement of AGMARK certification prior to Import of Blended Edible Vegetable Oil (BEVO) stands withdrawn.

3rd August 2022

FSSAI Order: Requirement of Health Certificate for imported food consignments.

FSSAI issued an order regarding the requirement of Health Certificate for imported food consignments. As per the order, the food consignments of the food categories ; i) Milk and Milk products, ii) Pork and Pork products, iii) Fish and fish products, as specified in the FSS (Food Product Standards and Food Additives) Regulations, 2011, shall be accompanied by a Health certificate issued by Competent Authority of the exporting country in the prescribed format (Annexure) and this will be effective from 1st November 2022.

KAMPUS

KHABAR



KRISHNA JANMASHTAMI AT CFTRI

Like all other cultural events, Krishna Janmashtami is also celebrated in a unique way at CFTRI. With the help of the design team, a unique and attractive poster was made to invite all the residents of the IFTTC hostel. Thanks to all the creative and hard-working people that made this event into a grand one by putting their efforts to provide an atmosphere worthy of Janmashtami. Everyone got dressed up in their traditional attire to celebrate the puja in the evening time. After the puja, everyone got to relish the delicious prasada, just thinking about that makes one's mouth watery.

Janmashtami is incomplete without the Matki fodna. So events like Dahi handi and tug-of-war were also arranged and everyone enjoyed those events to their heart's content. (Any M.Sc. cultural event is incomplete without a photo session so after the Janmashtami celebration a long photo session took place.)



IFT ELECTIONS

The election was conducted for IFT office bearers for the M. Sc. Food Technology 2021-23 batch by the IFT office bearers of the 2020-22 batch on 9th July 2022. Mr. Soman Rahul Ajit was elected as the President, Mr. Kalandar M as treasurer, Ms. Sowmya K, and Mr. Rishi Mohan Singh as cultural secretaries, Mr. Krishna Kumar Upadhyay as Sports Secretary, Mr. Krishan Kant as Quest CEO and Ms. Shree Bharathi S as the DJ of the club.

COORG TRIP

On 2nd July 2022, our seniors (PAVrangers) organized a trip with us (CORNquerors) to Coorg. The day started with DJ on the bus. Then we had a great time while visiting the Mandalpatti viewpoint which was an adventurous experience in the truck traveling through rough steeps. Later, we had a delicious lunch arranged by the IFT club at Udupi. Later, we visited the Dubare Elephant camp and Tibetan Monastery. On our way back we had a delicious dinner and returned to the campus at night with a heart full of memories.





Farewell Party Hasta-La-Vista (Rangers are Roving Ahead).

The time of M. Sc. life which no one wants but has to face has come. The farewell to PAVrangers (batch of 2020-2022) from CORNquerors (batch of 2021-23) was conducted on 30 July, 2022. The morning bell rang with the invites on the doors of the PAV's inside the campus. The sky was shining bright with all the CORN's running around the campus making it more beautiful for their beloved seniors. The event started with the coolest photography session with all the Balcony Boys and PAV girls embracing and making the evening more beautiful using different props, a PAV statue, and lots of memorable photos. The entry was a range of tasks to be done by the PAV's like ticking the to-do things, the memory print, eating some not-so-usual stuff pavs, and one mysterious chit. The auditorium welcomed them with their Disney faces stuck on the chairs giving a huge smile on their faces.

The warm welcome was given to the guests of honor Dr. P.S. Negi, Dr. Sachin M Eligar, Dr. Anil, and Ms. Shruthi. The stage was set on fire by dashing Balcony Boys and splendid PAV girls followed by various performances like games, songs, dance, and a lot more. The prize distribution for sports events held on the campus took place with the winning team "Flower nahi Fire" followed by dinner. The dining hall was decorated with flowers, lights, finger-licking food, and the emotional journey video of PAVs. The energized batches gave their dance performances followed by another chit of the Treasure hunt during the Churmuri Awards. All the PAVrangers got the final part of the puzzle from their respective juniors, then a rush and assembly of puzzles formed the logo of PAVrangers followed by the token of love having the thumbprints and memories of the outgoing batch along with their photo given. The day ended with our senior emotional talks, cake cutting, and teary eyes full of memories recalling every moment of this M.Sc. journey.

OPEN DAY AT CFTRI

CSIR- CFTRI hosted OPEN DAY from 26th Sep 2022 to 27th Sep 2022 with a theme "Food Industry Connect". The technologies and machinery available at CFTRI were showcased and demonstrated for the public to see. More than 15,000 visitors came to CFTRI on the occasion of OPEN DAY. The products developed at CFTRI were also showcased during the event. It was a great initiative to connect people with the currently available technologies in the food industry. Several startups participated in the session to display their products. People were intrigued by the infrastructure of the CFTRI as well as the grand event hosted by the CFTRI.



Raw Pressery

Raw Pressery is a Mumbai-based Cold Press Beverage manufacturing company that was founded by Anuj Rakhyan in 2013 with an initial investment of 1.5 crores. The company's first product was "Green juice" made out of kale, spinach, amla, celery, and bottle gourd targeting the health-conscious people in the market. The company initially started reaching the consumers through the subscription-based model and also collaborated with dabbawalas of Mumbai city for delivery service.



The specialty of the cold-pressed juices prepared by the company is that the juices retain most of the nutrients and the natural color as they are subjected to High-Pressure Processing (HPP) instead of the conventional thermal treatment. It has a shelf life of 21 days when stored at 4-8°C and when once the bottle is opened, the shelf life is 2-3 days without any preservatives added. The company sources the material directly from farmers and has a robust supply chain and logistics management system. Raw Pressery has expanded its roots all over India with more than 2000 points of sales in major cities like Mumbai, Delhi, Hyderabad, Bangalore, and Chennai. The company also has a presence in Dubai and Singapore.

Raw Pressery Valencia orange juice

Raw Pressery Valencia orange juice is fresh cold-pressed fruit juice. It is organically made of Valencia. It is sugar-free and has no added preservatives. The orange flavor is used as a refiner. The ingredients comprise Valencia orange juice (100%), antioxidant [(INS 224), Vitamin C - (INS 300)], and naturally occurring sugars. It has a shelf life of 7 months. It is rich in Vitamin C as Valencia oranges are a high source of dietary fiber and Vitamin C. Vitamin C is additionally proven to boost immunity and protect your skin from harmful radicals.



Raw Pressery Sugarcane Juice

Raw Pressery is the first Indian company to introduce packed sugarcane juice. Sugarcane juice is typically always consumed immediately after it is extracted. If stored/consumed later, the beverage turns darker due to oxidation of simple sugars. The main ingredients used here are sugarcane juice (94%), lemon juice, antioxidants (vitamin C, INS 300), and INS 224. Very often we have seen vendors adding ginger, mint, and lemon to sugarcane juice to enhance the flavor. The addition of Lemon juice or vitamin C also helps in naturally averting the oxidation of diphenols to quinones, in turn reducing browning. Scientifically, citric acid lowers the pH level and imparts acidity to enhance the quality of the final product. However, such anti-browning agents used for short-term preservation impact the flavor and sensory experience too. This technique is used by raw pressery to maintain shelf life.



Almond milk

Almond Milk, unlike regular milk, comes from the earth. It's low in calories and high in calcium which gives stronger bones and boosts brain power. 75% of the world's population is lactose intolerant and almond milk is 100% lactose-free and packed with plant proteins. Raw Pressery's Almond Milk is made from Water, Almond (5%), Emulsifier (INS 322), Acidity regulator, and Stabilizer (INS 410, INS 170(i), INS 418). Raw Pressery's almond milk comes in five flavors — Mango (new), Dates (new), Cacao, Coffee, and Unsweetened.



EASY ON YOUR STOMACH. EASY ON THE PLANET.

FEEL THE DIFFERENCE WITH DAIRY-FREE ALMOND MILK.

NUT MILK. NOT MILK.

BRAIN POWER |
 STRONG BONES |
 GREAT HAIR |
 HIGH IN VITAMIN E

NO ADDED SUGAR |
 VEGAN |
 LACTOSE FREE |
 COLD-PRESSED

MORE NUTRITION | LESS CALORIES

WHAT THE FOOD

CENTURY EGGS



Have you ever tried rotten eggs?

Much like stinky tofu and bird nests, century eggs belong to the group of infamous weird, ancient, and mysterious dishes from the Middle Kingdom that only the bravest of foodies dare to try. The century egg, also known as the 1000-year-egg or millennium-egg, has a different name in Chinese and it doesn't refer to its alleged age but to its look, which means leather egg. It's a culinary dish made by preserving duck, chicken, or quail eggs in a mixture of clay, ash, salt, quicklime, and rice hulls for several weeks to several months, depending on the method of processing.

Through the process, the yolk becomes a dark green to grey color, with a creamy consistency and strong flavor due to the hydrogen sulfide and ammonia present, while the white becomes a dark brown, translucent jelly with a salty flavor. The transforming agent in the century egg is an alkaline salt, which gradually raises the pH of the egg to around 9–12, during the curing process. This chemical process breaks down some of the complex, flavorless proteins and fats, which produce a variety of smaller flavorsome compounds.



Century eggs prepared in traditional ways are generally safe to consume. Century eggs can be eaten without further preparation other than peeling and rinsing them – on their own, or as a side dish. In central China, they are sliced into pieces, drizzled with black vinegar, and served as a side dish. They are also used in a dish called old-and-fresh eggs, where chopped century eggs are combined with (or used to top) an omelet made with fresh eggs. The century eggs may also be cut into chunks and stir-fried with vegetables, which is most commonly found in Taiwanese cuisine.



ALUMN COLUMN

❖ What was your batch name and is there any interesting story behind it?

My batch name is the "French Toast Mafia", there's no particular story behind it, many names were suggested and everyone liked this very much.

❖ Life at CFTRI is full of twists and turns how would you describe your two years here?

It was heaven. I cannot express how great it was, it was called "la la land", once we step out of course it will not be the same, cherish every moment that you have here because you are not going to get this after two years again in this campus, it was a privilege living in that campus and it was just pure heaven.

❖ What is your most vivid memory?

It was on the first or second-day seniors want to meet us at 9:00 P.M. and we were asked to be assembled after dinner, initially we were calm but as time goes on we got nerved, I remember that all the girls went to G11 which was facing the canteen and we had switched off our lights in the room and we could see entire senior batch sitting in front of the mess and talking about the intro and we were there in G 11 thinking that they're conspiring against us.



Preeti Tyagi

2017-19

Quality Assurance
Hindustan Coca Cola Beverages

❖ CFTRI is full of legacies share your favorite legacy.

My favorite legacy is once the intros are over the seniors will take the juniors to Chamundi and when seniors leave the campus, juniors will take the seniors to Chamundi. That was my favorite legacy because that was the first time the entire senior and junior batches interact informally right after the initial gap.

❖ How did CFTRI prepare you for your career?

Intros prepared me for the interviews. The first question usually is, tell me something about yourself, so for that, I was prepared how to talk, about posture which is very important during interviews.

❖ Any hilarious moment you came across in class?

During our MFT Practicals which were taken by Dr. Rupawati, every time we used to go and we'll just show our faces to Dr. Rupawati for attendance, and then eventually when she used to leave, we would sneak out and go for ice cream and we'll go around the whole campus. One particular day she saw us coming back from the West gate, and from that day she stayed there for the whole practical class.

❖ Hostels are the core zone of CFTRI life, which block marks the most memorable moment of your stay in a hostel?

For me F & G blocks, G block was our block and we used to do a lot of fun there, it was like my second home, F block was my favorite block because there were some foreign students in ISMT with whom we had a very great bond and we used to do several parties there.

❖ What was your favorite place in campus?

My favorite place has to be the mansion, we would go and sit straight for hours, talking about some rubbish, gossiping and planning for outings, and doing something until the guards shout us away. The second one would be the memories of FMBCT road, we used to go to Kukarhalli lake through the south gate in the morning.

❖ Out of your experience which is the one thing you would advise the student that they must do?

I would say enjoy the CFTRI life it is one of the most precious moments you can have, they also do focus on your practicals they are very important once you go in your industry they will play a significant role and don't just try to mug up things try to understand the concept behind them and always keep your batch first, don't let small things come in between your batch unity because after this you don't know when you people will get to meet and always let the CFTRI flag flew high.



CAREER CORNER

DATA ANALYSIS USING ADVANCED EXCEL, POWER BI AND TABLEAU

The food industry is one of the sectors that has experienced the most changes since the last century when consumption habits were modified to make way for processed foods and their mass production. Today, this industry is facing another process of change and opportunity with Data Science. Data Science has benefits in customer service, quality control, and improving the operational efficiency of food industries. It provides a bird's eyeview of one's business. From sales to supply chain, from compliance to analyzing customer behavior – it helps in keeping track of a lot of data.

Data Science can monitor and analyze the comments that customers make on social media platforms. Through techniques such as language processing, it is possible to categorize customer responses as positive, negative, or neutral, and with this implement strategies to improve the consumer experience. Data Science is responsible for analyzing the factors involved in the quantity, quality, and storage of ingredients to prevent possible problems in the quality and safety of food. With data science and algorithms, companies have been able to analyze market trends and other factors that cause food waste.

Excel calculates, organizes, and evaluates quantitative data to make important decisions.

Tableau is a very powerful data visualization and analysis tool where one can create business-standard dashboards to not only visualize data but also draw insights from it.

Power BI is a technology-driven business intelligence tool for analyzing and visualizing raw data to present actionable information. It combines business analytics, data visualization, and best practices that help an organization to make data-driven decisions.

WHY ADVANCED EXCEL, POWER BI, AND TABLEAU IS NECESSARY FOR FOOD TECHNICIANS AND THE FOOD INDUSTRY?

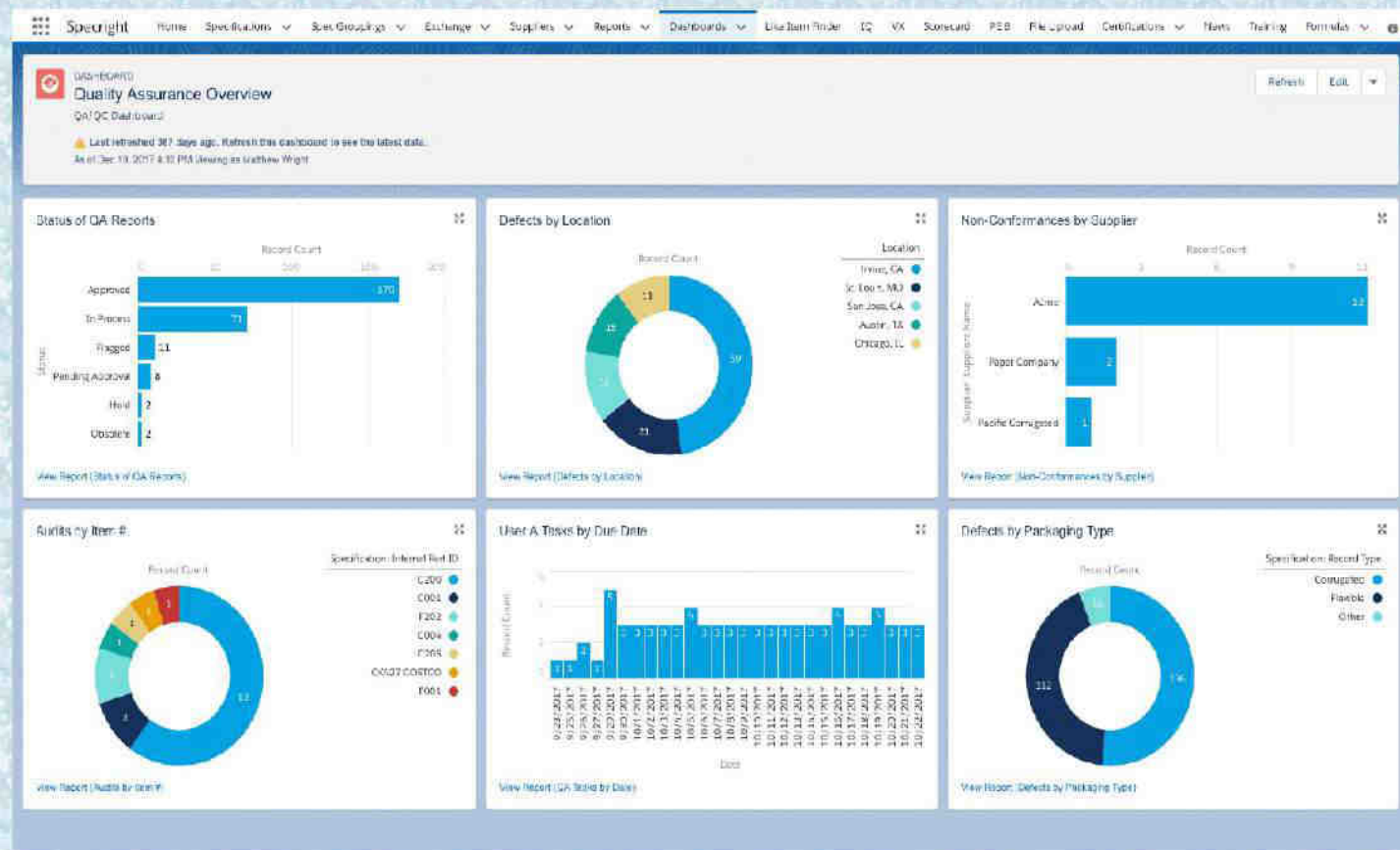
To create an easy-to-read set of data that can be used by upper management to analyze current projects or situations in the company. Design spreadsheets that better organize data and provide a better picture of the information. Read and comprehend spreadsheets and data from other departments, vendors, and customers. Data in a raw state can be overwhelming and hard to analyze. With the advanced capabilities of Excel, it is possible to organize one's information in a better way, make calculations whenever necessary, and sort the information so that it can be appropriately analyzed and transferred to graphs or charts for better viewing.

Advanced Excel improves the efficiency and productivity of employees, which ultimately would translate into greater efficiency and heightened productivity for the company. The more efficient employees work, the quicker will be the tasks and projects, thereby providing the customers and clients with better service in a shorter period.

Customer behavior is changing every month. Tableau can help companies find hidden insights from customer data. With Tableau, a company can access data readily across all its channels or branches and the concerned departments can take actions based on emerging trends since that data is automatically updated and reaches throughout the organization. It assists in tracking the number of orders served by employees so as to compare employee productivity and look for areas of improvement.

Tableau provides rich time series analysis to understand various aspects of the company, brand, or product, and services such as seasonality, trends, data sampling, predictive analysis, forecasting, and other common time-series functions within a robust UI. PepsiCo, one of the leading beverage companies, uses Tableau Desktop for analyzing inventory, logistics, and financial data.

Power BI creates a Business Intelligence environment, to empower its operations team, mobile workforce, and food-delivery personnel with information essential to make intelligent decisions on-the-fly. Power BI helps create an efficient supply chain operations environment, with real-time insights on Temperature threshold, Driver performance & Customer behavior; thereby maximizing operational efficiency. It provides a consolidated view of the data fetched from multiple sources in the form of interactive dashboards and enables intelligent decision-making by utilizing the power of intuitive rich visuals and reports generated from a staggering number of customer, inventory, and workforce data.



Such interactive visualization software including Advanced Excel, Power BI, and Tableau turn raw data of inventory, quality, storage, and supply chain into easily readable graphs and dashboards which leads to faster decision making. Data science attains a remarkable position in the food industry with several online learning platforms available for food technologists to work efficiently.

PLACEMENTS



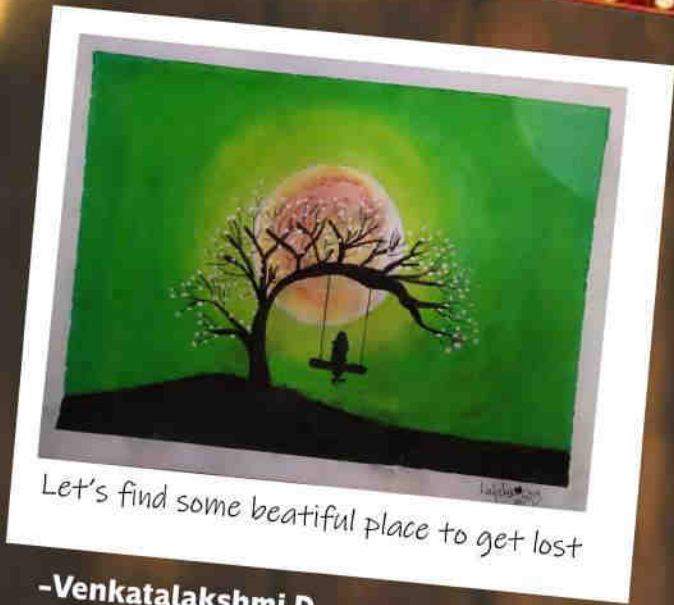
Bhageerathi Kalyani



Meghana M



KALAKRITI



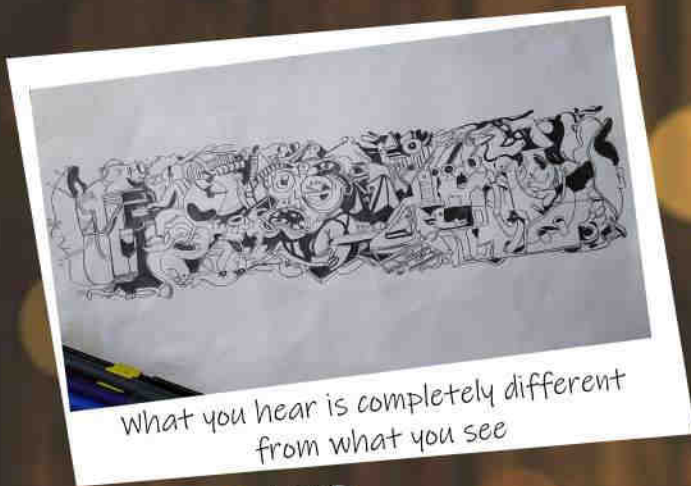
Let's find some beautiful place to get lost

-Venkatalakshmi D



Make your dreams, your reality,
Make your Dream corner, your space

- Shree Bharathi S



What you hear is completely different
from what you see

- Venkatalakshmi D



Every dusk brings the promise
of a new dawn

- Sowmya K



Music is to the soul what
words are to the mind

- Sowmya K



The heart wants roots,
yet the mind wants wings

- Shree Bharathi S

GAMES



WORD SEARCH

D	R	P	Q	X	C	G	H	W	L	C	Z	Q	I	Y	R	J	L	R	C	U	X	O	S
F	I	P	S	K	W	T	H	P	N	O	I	T	A	S	T	N	I	T	A	L	E	G	C
W	C	V	C	Y	M	A	L	O	R	N	Q	A	J	J	A	K	E	A	L	M	G	S	F
Q	A	E	S	V	M	Y	W	G	B	E	O	O	T	H	F	O	K	F	X	L	Q	N	H
B	R	M	F	R	K	A	S	N	V	G	S	I	T	N	W	V	P	W	X	E	A	O	V
B	A	D	N	B	T	P	I	Y	O	W	L	E	T	Q	L	N	V	L	D	Y	S	I	J
P	M	E	B	W	G	V	Q	L	L	I	L	O	R	A	W	S	N	W	Y	G	J	T	E
Q	E	X	M	N	D	H	D	K	L	D	T	Z	V	V	M	L	Y	M	S	Q	W	A	X
F	L	T	S	R	D	F	E	T	Y	A	E	A	W	L	V	E	X	V	R	M	F	C	R
O	I	R	H	D	A	I	D	H	A	N	R	N	S	Q	M	T	A	M	F	Q	B	I	Q
N	S	I	F	J	F	J	S	V	M	J	B	D	A	I	L	D	I	L	V	U	U	F	L
B	A	N	X	E	M	G	T	Q	I	E	S	R	R	T	V	G	L	V	I	U	L	I	O
P	T	I	O	M	S	J	N	P	H	Z	C	F	G	E	D	L	X	D	E	Y	R	S	Q
P	I	S	F	U	R	D	O	I	E	M	U	L	I	O	J	R	A	J	C	K	Y	L	W
E	O	A	Q	N	X	E	P	L	J	J	Z	W	L	X	T	C	A	T	G	Q	K	U	F
E	N	T	A	E	N	R	Q	A	J	A	S	C	F	A	T	H	T	T	S	V	L	M	F
P	A	I	D	H	T	N	F	T	W	Y	Y	M	U	F	I	L	K	I	I	Y	S	E	Z
G	M	O	Q	H	F	A	H	C	C	I	J	V	O	I	T	V	W	T	O	O	R	F	J
O	V	N	I	V	E	W	L	I	R	P	O	N	O	G	X	Y	C	X	O	N	N	C	E
K	R	J	G	C	M	Z	W	U	R	K	N	O	V	N	Y	O	P	Y	T	T	C	Y	G
J	J	W	T	Q	Y	B	O	E	G	V	Q	N	H	U	R	S	W	R	E	Y	X	U	T
A	R	O	A	R	S	C	K	A	F	A	G	J	P	M	L	O	R	L	L	I	B	W	N
H	G	I	V	P	C	R	B	L	J	X	O	Y	W	X	M	N	S	M	F	M	K	H	K
F	P	M	I	Y	O	W	T	H	B	E	W	C	O	L	J	S	C	J	D	T	N	X	N

Give the answers to the following and find the words in the given box

- 1) Name the process through which air is circulated, mixed or dissolved in liquid or substance?
- 2) What is the process for modifying the molecular structure of a protein?
- 3) How can we extend the shelf life of food products?
- 4) What should we call the process to keep two liquids together?
- 5) How can we explain the transformation of solids to crystalline in one word?
- 6) What is the process for the formation of dextrins?
- 7) What would be the name for the reason for starch swelling and thickening?
- 8) What is the reaction between proteins and reducing sugar commonly called a nonenzymatic reaction?
- 9) How can we change sugar's colour, taste and flavours with slow heating?
- 10) What is the process through which liquid becomes semi-solid or solid?



- 10.) GELATINISATION
- 9.) COAGULATION
- 8.) CARMELISATION
- 7.) DEXTRINISATION
- 6.) MILLARD REACTION
- 5.) CRYSTALLISATION
- 4.) EMULSIFICATION
- 3.) PRESERVATIVE
- 2.) DENATURATION
- 1.) AERATION

ANSWERS



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KRISHNA KUMAR
UPADHYAY
GURU VISHWAS S

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A PRADEEP
CHANDANA S V
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