CSIR IN MEDIA

CSIR

NEWS BULLETIN

21 TO 25 APRIL 2022

NALSAR signs pact with CCMB's Atal Incubation Center

CSIR-CCMB

25th April, 2022

NALSAR University of Law entered into a memorandum of understanding with the Atal Incubation Center–CCMB on Monday. The scope of this pact is to review/ advise on course, seminar, workshop curriculum, and structure of the special courses.

Through this engagement, AIC-CCMB will offer lectures to students, free counselling on career/guidance etc. and IPR Clinics will be conducted by NALSAR not only for AIC-CCMB startup community but also for students and scientist groups of CSIR-CCMB.

Both institutions will conduct periodical joint seminars as speakers, panel members, moderates etc. and such seminars shall be published in appropriate journals, said a press release.

The MOU was signed by NALSAR Vice-Chancellor Faizan Mustafa and CEO of the AIC-CCMB N. Madhusudhan Rao in the presence of varsity registrar V. Balakista Reddy.

Published in:

The Hindu

CFTRI resumes offline courses in food tech after two-year gap

CSIR-CFTRI 25th April, 2022

Many courses in Mysuru-based CSIR-Central Food Technological Research Institute (CFTRI) had been halted due to the Covid-19 pandemic

After a gap of two years, CSIR-Central Food Technological Research Institute (CFTRI), Mysuru has resumed offline courses.

One of the largest R&D institutions devoted to food science and technology under the Council of Scientific and Industrial Research (CSIR), the institute was not conducting all the Short Term Training (STC) programmes on its campus due to the Covid-19 pandemic.

With the COVID-19 situation returning to normal, CSIR-CFTRI is resuming all its short-term training courses in various subject pertaining to food technology and processing. The schedule of the 24 courses for 2022-23 has been hosted on the Institute's website (www.cftri.res.in). These courses are of short duration, but intensive and packed with lectures and demonstrations. Faculty members having vast experience in specific areas of food science and technology will handle these courses. The demonstrations and practical classes are conducted in state-of-the-art laboratories and pilot plants of CFTRI.

The training includes theory and hands-on practical sessions on: pest management, food processing, food packaging, food safety, food colours, bakery products, flour milling, food regulation, edible oil extraction, business opportunities, laboratory animal techniques, animal cell culture, product making, fruit and vegetable technology; chocolate confectionary, sensory analysis, probiotic dairy product development, solid waste and wastewater management, tools in microbiology, chromatographic techniques, food analysis, paddy and rice processing, grain processing, nutri-cereal processing, wine fermentation and related areas.

These courses will be held in batches from the 2nd week of May onwards till the third week of January 2023. In addition, CFTRI also conducts tailor-made courses depending upon the requirement.

For more details, interested candidates can visit the website or contact through telephone (0821-2514310) or e-mail (stc@cftri.res.in).

Published in:
The Hindu

CSIR Innovation Award for School Children: Apply by April 30

CSIR-IPU, NIScPR

25th April, 2022

Council of Scientific & Industrial Research (CSIR), the premier Industrial R&D Organization in India has invited proposals with original, creative, technological and design ideas for the CSIR Innovation Award for School Children 2022.

The Award aims to create awareness, interest and motivation for Intellectual Property and has been designed to support scientific temperament and to generate innovative spirit among school children.

Proposal: The proposals submitted should be one that is novel and utilitarian. It could a new concept or idea or design or a solution to an existing problem or completely a new method/ process/ device/ utility. The concept of the innovation should have been proved through a model, a prototype or experimental data. It is encouraged that the focus of students on innovation is through 'design ideas'. However, innovations related to other topics would equally be eligible. Essays/mere compilation of information from published literature/ downloaded from internet will not be considered. Details of any assistance/ guidance provided by teachers/parents/friends or others must be appropriately acknowledged.

Eligibility: Any Indian school going student up to Class XII and below 18 years of age as on 1st January 2022 would be eligible to apply in English or Hindi through the Principal/Head of the School (for authentication purposes). Proposals can be submitted by a student or a group of students. However, a single award will be given to group of students.

Applicant must submit the details of the innovation proposals by hard copy in English/Hindi in not more than 5000 words, along with an authentication certificate having seal and date, issued by the Principal / Head of the School where the student is enrolled.

Proposals must have title of the Innovation, name and date of birth of the candidate, school and residential address, class, telephone no. (residence /school) and e-mail address.

Applications should be submitted by hard copy through Registered Post/Courier to 'Head, CSIR-Innovation Protection Unit, NIScPR Building, 14 Satsang Vihar Marg, Special Institutional Area, New Delhi - 110 067' with the envelope marked on top left hand corner 'CIASC-2022' to reach latest by 30.4.2022. Entries can also be submitted through email ID ciasc.ipu@niscair.res.in. More details of submission of proposals is available at https://www.csir.res.in/whats-new

Details related to the selection process of the awards are also given at the website.

Prizes: There are in all 15 prizes which includes a cash prize and a certificate. The winner will get a cash prize of Rs. 1,00,000/-. There will be 2 Second Prizes @ Rs. 50,000/- each. Third Prize (3 numbers) - Rs. 30,000/- each; Fourth Prize (4 Nos.) - Rs. 20,000/- each; Fifth Prize (5)- Rs. 10,000/- each. It is not mandatory that all the above 15 prizes for the award would be given.

The Award will be announced on or before 26th September, 2022. The awards will be given to winners on 26th September, 2022, the CSIR Foundation Day. The cost of travel and stay at New Delhi will be borne by CSIR.

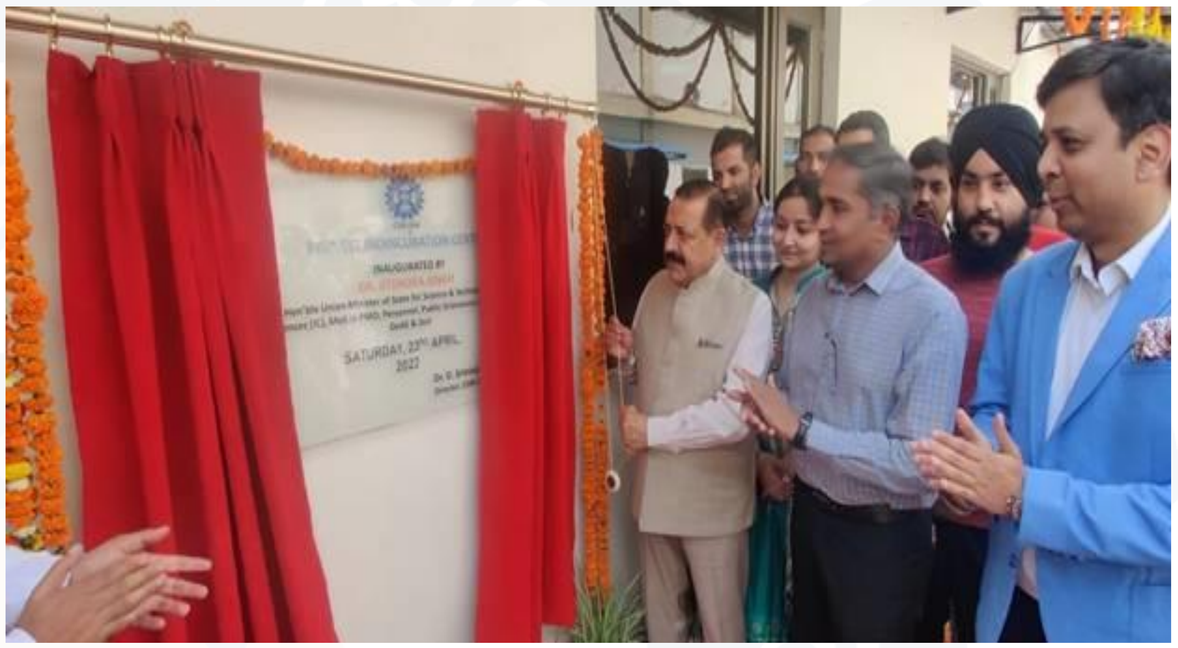
For more details, visit https://www.csir.res.in/whats-new

Published in:
Mathrubhumi

Union Minister Dr Jitendra Singh Inaugurates CSIR-IIIM's BioNEST-Bioincubator In Jammu This Morning Aimed At Providing Alternative Sources Of Livelihood To Thousands Of Youth In The Region

CSIR-IIIM

24th April, 2022



New Delhi: 64 Start-Ups have already registered with CSIR-IIIM Jammu and a fresh impetus has been given to promote Start-Up as an alternative source of livelihood, with financial, technical and logistic support being provided by Union Ministry of Science & Technology through its different agencies and departments. Out of these 64 StartUps, 14 have developed products and 4 have already reached the market.

This was stated here today by Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, while inaugurating CSIR-IIIM Jammu's BioNEST-Bioincubator this morning, which will offer alternative sources of livelihood to thousands of youth in the region.

Bio-NEST was launched by Biotechnology Industry Research Assistance Council (BIRAC) to foster the biotech innovation ecosystem in the country. Unlike Start-ups in the IT sector, enterprising ideas in the biotech sector need incubation support of a different kind where they need a landing space to test their ideas, run their operations, have access to high end instrumentations and locate in a place where they connect with other start-ups and mentors. Bio-NEST program provides support to establish bio-incubators either as a standalone entity or as a part of academia. Dr Jitendra Singh said that the 64 Start-ups registered with CSIR-IIIM, Jammu are based on people centric projects, 14 products have been developed and four have already reached the market. With this rapid speed, IIIM would now be accelerating the

process of registering more new start-ups, the Minister said. Dr Jitendra Singh said that the Inauguration of BioNEST-Bioincubator and interaction with Start-ups will give a fillip to the Technology Exhibition at PM's rally, as Narendra Modi is scheduled to grace the nationwide "Panchayati Raj Diwas" celebrations at Palli in Samba district tomorrow. He said, the event will motivate Start-Ups and help create awareness about enormous new avenues of livelihood being availed across the country but not receiving enough attention in this region due to lack of awareness.

Dr Jitendra Singh conveyed to the start-up entrepreneurs that this institute of national importance has heralded Aroma Mission, which has opened up new avenues of employment and self-reliance in the region. He said, Lavender has gained huge popularity among the farmers of the region as Filtration, oil products and waste repurposing are emerging new paths for the Population in the region. The Minister explained that this is a path-breaking achievement of the current economy as there is a huge demand in the country and overseas and can earn valuable forex for the country as well.

Dr Jitendra Singh said, there is a need for widespread publicity that IIIM Jammu was helping the Start-ups in aroma and lavender farming to sell their produce. Prominent companies like Mumbai based Ajmal Biotech Private Limited, Aditi International and NavnaitriGamika, etc., are the primary buyers, he added. He also said that there is huge scope in Dairy Start-up to promote the setting up of modern dairy farms for the production of clean milk, encourage heifer calf rearing, and generate self-employment.

Dr Jitendra Singh said that the Stalls put up by various departments and wings of the Union Ministry of Science & Technology for Exhibition at PM's rally will display latest technologies and innovations beneficial for rural areas and farming. The Minister had already inspected the 500 KV Solar Plant and other Exhibition themes on Tuesday at the Palli Panchayat of Samba District, which was completed in record time.

Dr Jitendra Singh said that the carbon-free solar plant has been installed on a total area of 6,408 square metres and was completed in a record time of 18 days and will provide clean

electricity and light to 340 houses in the Panchayat. It was built by Central Electronics Limited, PSE under Department of Scientific and Industrial Research, Union Ministry of Science and Technology, the Minister added.

Dr Jitendra Singh informed that some of the themes identified for the Exhibition are: poverty and enhanced village livelihood, Healthy village, Child-friendly village, Water sufficient village, Clean and green village, Self-sufficient infrastructure in village, Engendered development in village to be implemented by different departments of Science Ministries will bring about revolutionary transformation in augmenting the household income of the rural populace.

Similarly, the Minister said, Stalls showcasing integration of Science & Technology with the themes of Rural Development and Panchayati Raj will be put up for the benefit of common man. He added that instead of having conventional stalls at the event, efforts are being made to showcase latest technology which can add value to farmers' income and science-based demonstration with Panchayati Raj features.

Published in:
India Education Diary

Mangaluru: St Aloysius College organizes seminar on 'Food for Gut Immunity'

CSIR-CFTRI

23rd April, 2022

Mangaluru, Apr 23: On April 22, a National Seminar on 'Foods for Gut Immunity' was held by the collective efforts of the undergraduate departments of Biochemistry, Biotechnology, Microbiology, Botany, and Food Science, in association with KSTA (Government of Karnataka).

The event began at 9:30 a.m. with a prayer song recited by Saumia and the team, followed by a dance recital by Malvikaand the team. S Harsha Paul, Dean of Biosciences, and the HOD, Department of Microbiology had given the welcome address and introduced the chief guest, Prof B P Veerabhadrappa, vice chancellor of Kuvempu University. Prof B P Veerabhadrappa,addressed the gathering with a speech on the diversity of food found across the world and how men adapted to it which varied accordingly across generations. The vice-chancellor also briefed the gathering about the opportunities that persist in both private and public sector jobs in the field of science and commended the workings of our prestigious institution and suggested more courses be added to obtain the university status. Dr Praveen Martis SJ, principal, then gave his presidential remarks. Shameena K A, head of the Department of Biochemistry, proposed the vote of thanks for the inaugural portion of the seminar.

The inauguration was followed up by a keynote address on 'Therapeutic Uses of Fermented Food' by, Dr Prakash M Halami, chief scientist and Head of the Department of Microbiology and Fermentation Technology at CSIR-CFTRI, Mysuru, the resource person for the event. The speech proceeded with the basic concept of how our gut works and the microorganisms

that it harbors. He pointed out key sensitive topics regarding how various harmful pathogens inflict inflammation which leads to Inflammatory Bowel Disease, the role of Bifidobacteria in the large intestine and Lactobacillus in the small intestine, the Benefits of Bifidobacterium in humans, and how it could be the key tool in maintaining the longevity of the lifespan of a person, Bifidobacterium a key probiotic which does not lead to contamination in any form and fit for human consumption, etc. He concluded with his current research on how they synthesized curds with both Lactobacillus and Bifidobacterium, where the approval for mass-scale production is yet to be initiated and where the Indian society could view Bifidobacterium to be equally as important as Lactobacillus. A Question& Answer session was held, where the students actively participated in the discussion and the seminar concluded at 12.30 p.m.

The exhibition on fermented foods, "Fermentato La Fiera", was inaugurated by the Chief guest, Prof. B.P. Veerabhadrappa, in the LCRI Block Entrance, compered by Mr. Ian Castelino. The exhibition consisted of 27 teams exhibiting multiple kinds of fermented foods such as kimchi, buttermilk, cheese products, and various types of pickles and wines. Dr Ambarish C N, postgraduate department of Biochemistry, and Dr. Santhosh Wilson Goveas, Postgraduate Department of Biotechnology, judged the exhibits. The exhibition hall was managed under the supervision of Dr Vaishali Rai, Department of Microbiology. The exhibition concluded at 1:15 p.m.

The valedictory program began at 3:15 pm. Dr Richard Gonsalves, director, LCRI Block was the guest of honor, accompanied by Prof Harsha Paul S, Dean, Biological Sciences, and Shameena, Dept of Biochemistry. Nidhi Shenoy, the student coordinator, had given the welcome speech, followed by the distribution of prizes. First place was secured by Shriya Rao and Pratheeksha, second place was secured by Alroy Nazareth and Dabria Heleena Moniz, and third place was secured by Shreyas K B and Sushupthi. The vote of thanks for the exhibition and valedictory ceremony was proposed by Vishal Shridar Moger, the student coordinator. The event concluded at 4 pm.

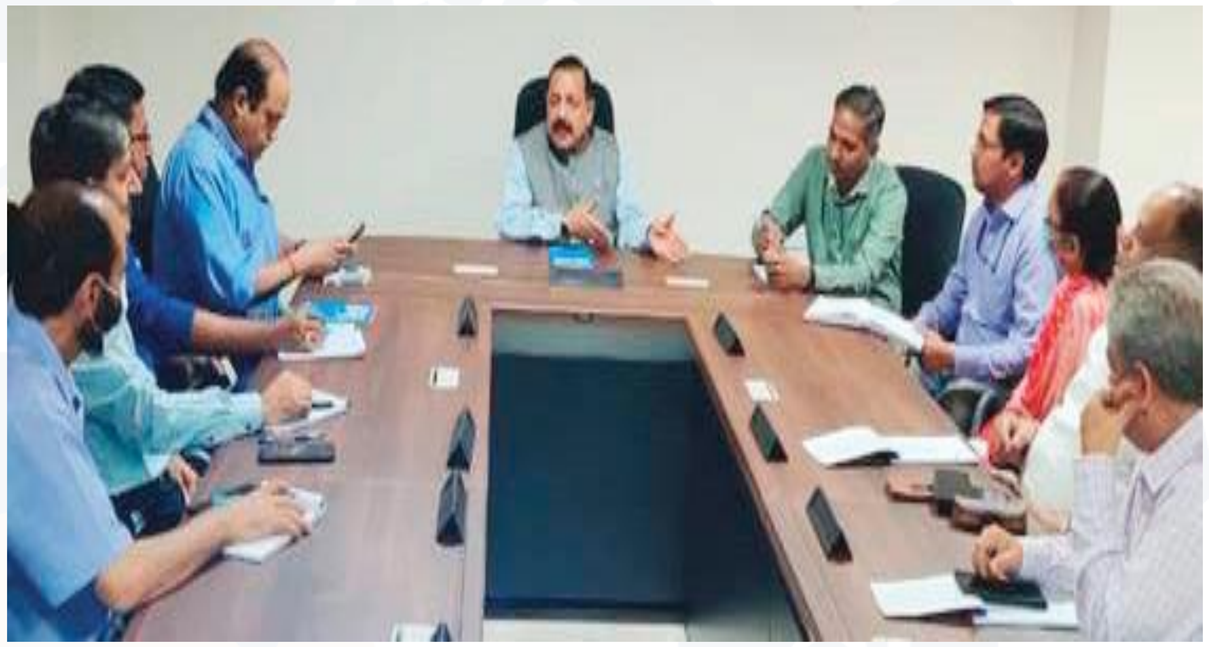
Published in:
Daijiworld

Technology exhibition at PM's rally to motivate StartUps: Dr Jitendra

CSIR-IIIM

23rd April, 2022

Jammu: Union Minister of State in PMO Dr Jitendra Singh on Friday said that technology exhibition at PM's rally would motivate StartUps and help create awareness about enormous new avenues of livelihood being availed across the country but are not receiving enough attention in this region due to lack of awareness.



Soon after arriving here from New Delhi this morning, Dr Jitendra held a thorough review of more than a dozen stalls being put up by the Union Ministry of Science & Technology for Exhibition during the Prime Minister's visit to Jammu to grace the nationwide "Panchayati Raj Diwas" celebrations this Sunday.

Dr Jitendra Singh, who is also the Union Minister of State (independent charge) Science & Technology; Minister of State (independent charge) Earth Sciences besides MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, said that the stalls put up by various departments and wings of the Union Ministry of Science & Technology would display latest technologies and innovations beneficial for rural areas and farming.

The minister had already inspected the 500 KV solar plant and other exhibition themes on Tuesday at the Palli Panchayat of Samba district, which was completed in record time.

Dr Jitendra Singh said, "The carbon-free solar plant was installed on a total area of 6,408 square metres and was completed in a record time of 18 days. It will provide clean electricity and light to 340 houses in the Panchayat. It was built by Central Electronics Limited, PSE

under Department of Scientific and Industrial Research, Union Ministry of Science and Technology."

He informed that some of the themes identified for the exhibition were poverty and enhanced village livelihood, healthy village, child-friendly village, water sufficient village, clean and green village, self-sufficient infrastructure in village, engendered development in village to be implemented by different departments of Science ministries would bring about revolutionary transformation in augmenting the household income of the rural populace.

Similarly, the Minister said, stalls showcasing integration of Science & Technology with the themes of Rural Development and Panchayati Raj would be put up for the benefit of common man.

He added that instead of having conventional stalls at the event, efforts were being made to showcase latest technology which could add value to farmers' income and science-based demonstration with Panchayati Raj features.

Dr Jitendra Singh also reviewed with senior scientists of CSIR the Aroma Mission and the overall impact of Purple Revolution in augmenting income resources of common man.

He said, "Purple Revolution" is Jammu & Kashmir's contribution to "Start-ups India". The CSIR had, to begin with introduced high-value essential oil bearing lavender crop through its Jammu based laboratory, Indian Institute of Integrative Medicines (IIIM) for cultivation in districts Doda, Kishtwar, Rajouri and later also in the other districts including Ramban, Pulwama, etc. In a brief span of time, aroma/lavender cultivation has become a popular option in farming for agricultural Start-up."

Dr Jitendra Singh said that there was a need for widespread publicity that IIIM Jammu was helping the Start-ups in aroma and lavender farming to sell their produce. Prominent companies like Mumbai based Ajmal Biotech Private Limited, Aditi International and NavnaitriGamika, etc., were the primary buyers, he added.

Pertinent to mention that Aroma Mission is attracting Start-ups and agriculturists from across the country and during Phase-I CSIR helped cultivation on 6000 hectares of land and covered 46 Aspirational districts across the country.

More than 44,000 persons have been trained and several crores of farmers' revenue generated. In the second Phase of Aroma Mission, it is proposed to engage over 45,000 skilled human resources with the aim of benefitting more than 75,000 farming families across the country.

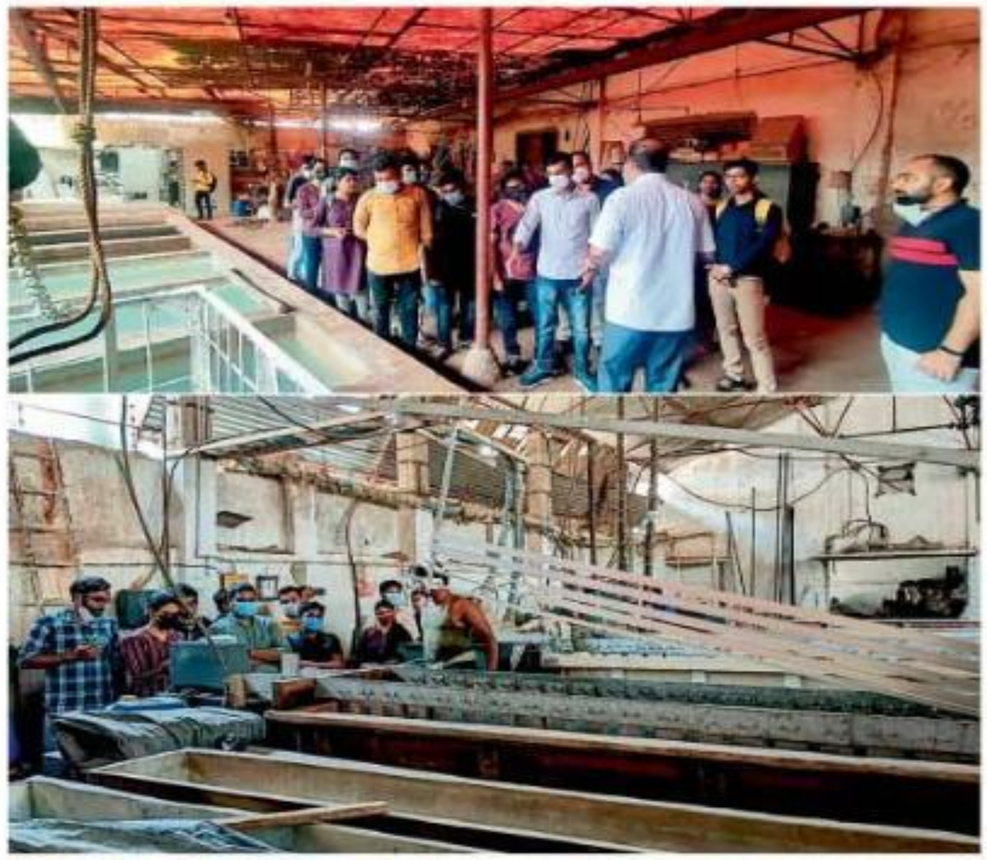
Dr Jitendra Singh also expressed satisfaction that more and more technocrats were leaving lucrative jobs in the corporate sector and taking up DBT promoted Dairy Start-ups. He said, over 10 thousand dairy units were set up in the last two years in Jammu and Kashmir.

Published in:
Greater Kashmir

CSIR-IMMT

23rd April, 2022

सीएसआईआर-आईएमएमटी में एकीकृत कौशल पहल कार्यक्रम आयोजित



भुवनेश्वर. भुवनेश्वर में स्थित सीएसआईआर-आईएमएमटी में औद्योगिक अनुप्रयोगों के लिए विद्युत रासायनिक प्रसंस्करण तकनीकों और विशेषता पर दो दिवसीय एकीकृत कौशल पहल कार्यक्रम, ईपीसीआईए (इलेक्ट्रोकेमिकल प्रोसेसिंग तकनीक और औद्योगिक अनुप्रयोगों के लिए विशेषता)-2022 आयोजित किया गया. सीएसआईआर-आईएमएमटी के निदेशक प्रो. सुधासत्व बासु की अध्यक्षता में आयोजित यह कार्यक्रम संयोजक डॉ. यू बालाजी, मुख्य वैज्ञानिक एवं एएमटी विभाग के प्रमुख डॉ. बी भोई और इंटीग्रेटेड स्किल्स इनिशिएटिव प्रोग्राम सीएसआईआर के संयोजक डॉ. एस के प्रधान की उपस्थिति में आईपीसीआईए-2022 कार्यक्रम का उद्घाटन किया गया.

इस अवसर पर सीएसआईआर-आईएमएमटी के निदेशक प्रो. बासु ने कहा कि, एप्लाइड इंडस्ट्रियल इलेक्ट्रोकैमिस्ट्री में कार्यक्रम प्रशिक्षण जैसे कार्यक्रमों के संदर्भ में अधिक मूल्यवान हैं क्योंकि इस तरह के पाठ्यक्रम किसी भी शैक्षणिक पाठ्यक्रम में उपलब्ध नहीं हैं. उन्होंने आगे कहा कि प्रतिभागियों के लिए व्यक्तिगत प्रशिक्षण प्राप्त करने का यह एक शानदार अवसर है. कार्यक्रम का उद्देश्य विभिन्न विद्युत रासायनिक प्रक्रियाओं में अकादमिक और उद्योग की प्रगति का अवलोकन प्रदान करना है.

ओडिशा के विभिन्न शैक्षणिक संस्थानों, विश्वविद्यालयों और कॉलेजों के लगभग 15 प्रतिभागियों के साथ-साथ अंडरग्रेजुएट स्कूल के युवा कार्यकर्ता इसमें शामिल हुए थे. उन्होंने आईएमएमटी के प्रख्यात वैज्ञानिकों के भाषणों, लाइव प्रदर्शन, सुरक्षा दिशानिर्देशों और आत्म-परीक्षणों के बारे में जानने के लिए इलेक्ट्रोकैमिस्ट्री तकनीकों और अनुप्रयोगों अनुप्रयोगों पर बात की. कार्यक्रम के दौरान, उन्होंने प्रतिभागियों को औद्योगिक इलेक्ट्रोकेमिकल के संचालन और यह व्यावसायिक रूप से व्यवसाय कैसे कर रहा है, यह समझने के लिए मचेश्वर में एक औद्योगिक स्थल का भी दौरा किया. जो इस क्षेत्र में अपने भविष्य की आशा कर रहे हैं, यह कार्यक्रम उन लोगों के लिए जरूरी है और उन्हें पेशेवर कौशल प्रदान करने के लिए सहयोगी है. इस कार्यक्रम के दूसरे दिन डॉ. बिकाश कुमार जेना, डॉ. ममता महापात्र, डॉ. चिन्मय कुमार षड़ंगी और डॉ. उमापाथि बालाजी विभिन्न मुद्दों पर चर्चा करेंगे.

Published in:
Navbharat

JK Lakshmipat's Techno-Cultural festival SABRANG concludes; 600 students attended

CSIR-CEERI 22nd April, 2022

Jaipur, April 19, 2022: Curtains were brought down on JK Lakshmipat University's (JKLU) 10th edition of SABRANG, a three-day annual techno-cultural-management-design extravaganza. The fest saw the participation of more than 600 students, who showcased their skills in over 25 events including Music, Dance, DJ, Fashion, Photography, Painting, Design, Literature, Drama, Finance, IT & Gaming.

The event was scheduled from April 15th-17th, 2022 and had students from across various colleges from Jaipur. Live performances of Navjot Ahuja, DJ Tejas, HPO and Audio Bat kept the student's momentum high with their gigs every evening of the festival. The event was attended by dignitaries such as Mr. Sai Krishna V, Principal and Scientist in Charge CSIR-CEERI Pilani (Jaipur Centre) and JKLU's Vice Chancellor Dr (Prof.) Dheeraj Sanghi.

"The three days were packed with knowledgeable and experiential fun activities. For every educational institution, student works so hard for their academics that they deserve a break once in a while. These breaks are very important not just to get back to academics later on but also express their leadership, learn teamwork. It's a proud and happy moment for all of us because of the fact that the event is solely organized by the students. In the last couple of years, we had created teams comprised of students and faculty members, who worked together. But, this time, we thought there could be some supervision needed from the faculty. But, all the decisions were taken primarily by the students," said Dr (Prof) Dheeraj Sanghi, Vice Chancellor, JKLU on the concluding day. Much in sync with SABRANG's theme 'Express the colors within', the fest provided an opportunity to students throughout different universities to join and showcase their talents and enjoy the event.

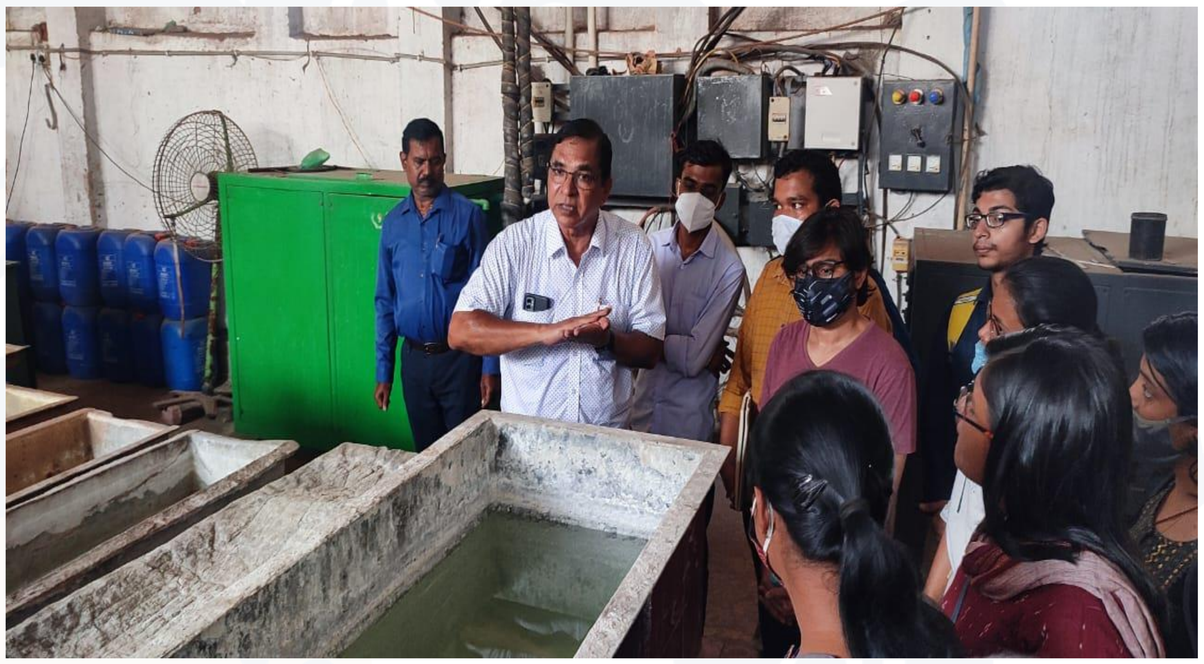
Published in:

Apn News

CSIR-IMMT Successfully Conducts Two-day Integrated Skill Initiative Program

CSIR-IMMT

22nd April, 2022



Bhubaneswar(22/04/2022): A 2-day CSIR Integrated Skill Initiative Program on "Electrochemical processing techniques and characterization for industrial applications" EPCIA-2022 was organised at CSIR - IMMT on 21st and 22nd April 2022. The programme was inaugurated in the presence of Prof. Suddhasatwa Basu, Director CSIR-IMMT Dr. U. Balaji, Program organizer EPCIA 2022, Dr. B Bhoi, Chief Scientist & Head AMT Department, Dr.S.K.Pradhan and Coordinator CSIR Integrated Skill Development Initiative. Prof.Suddhasatwa Basu, Director CSIR-IMMT delivered the inaugural remarks and presided over the Inaugural program.

He said that programs in applied industrial electrochemistry such as this are more valuable in terms of training because such courses are not in any academic curriculum.

He also expressed that this is a unique opportunity for the participants to get hands-on training. The event aimed to provide an overview of academic and industrial advancements in various electrochemical processes, which includes lectures from eminent scientists from IMMT, live demonstrations, safety instructions and hands-on experiments planned for about 15 participants (Postgraduates, PhD scholars and young working professionals from universities and colleges of Odisha) to get a feel of existing techniques and applications in the domain of applied electrochemistry. The participants had an industrial visit to Mancheswar in order to provide exposure to understand actual industrial electrochemical operations for practical applications that are currently under commercial operations.

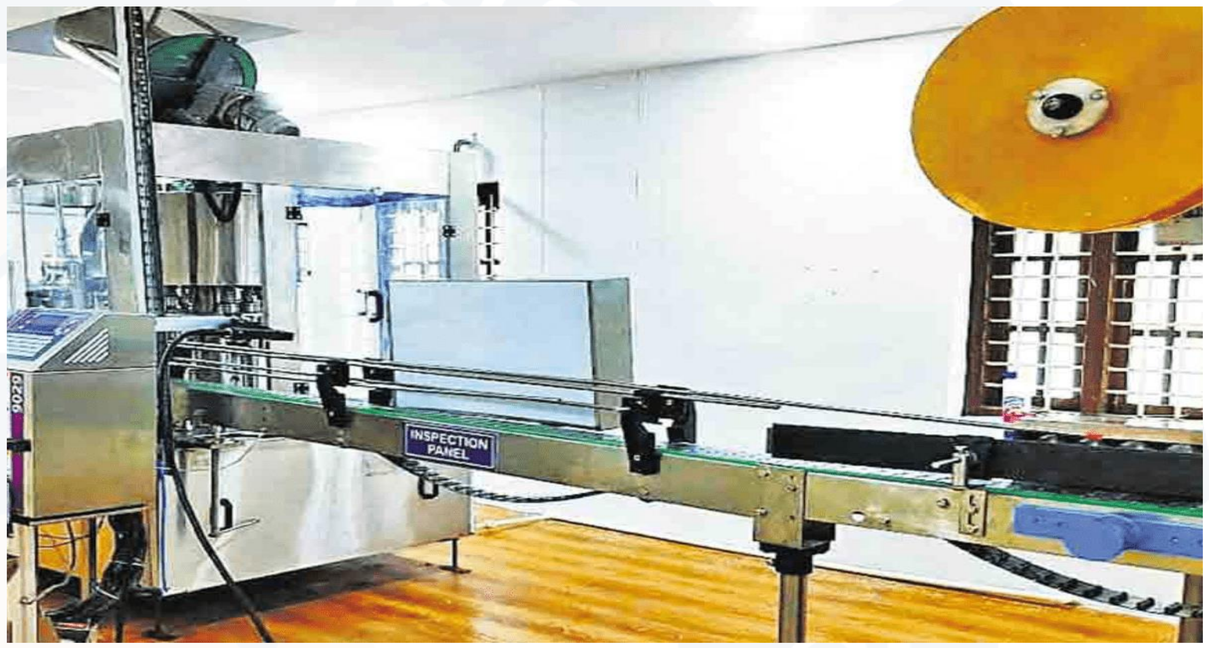
The program was intended to impart research as well as professional skills required for the participants who aim to have a career in this field. Dr.Bikash Kumar Jena, Dr.Mamata Mohapatra, Dr.Chinmaya Kumar Sarangi and Dr.Umapathi Balaji were discussed on various related topics.

Published in:
Odisharay

Plant to extract drinking water from air set up in Hyderabad

CSIR-IICT

21st April, 2022



Hyderabad: A plant has been set up in Hyderabad to make packaged atmospheric mineral water from air. Supposedly the first of its kind, the plant was set up by Sachin Vaddavalli, founder of USATA Enterprises Private Limited. According to the company, Aria LifeWater is the world's first packaged atmospheric mineral water in a bottle. The plant and water have been authorized by the Bureau of Indian Standards (BIS) and the Food Safety and Standards Authority of India (FSSAI).

Founder and managing director of USATA, Sachin Vaddavalli said, "I noticed that bottled water in India is RO filtered, and the rising demand for it portends a major problem." It depletes groundwater since RO wastes or rejects up to 70% of the water drawn from the ground. I also saw the twofold difficulty, groundwater depletion, and mineral shortage."

Vaddavalli then looked into solutions for fulfilling drinking water demands. Desalination- which is prohibitively expensive for commercialization, and the byproduct 'Bryne' is harmful to marine life. That left only one long-term and realistic solution: water from the atmosphere.

There is a lot of water in the atmosphere. There is about six times as much water in the air than there is in all of our planet's rivers combined. And all of this water is recycled many times a year. "Innovative technology is utilised to gather water vapour present in the air and condense it into the water, while pre-filters eliminate dust particles, contaminants, and heavy particles," Sachin explains.

The collected water is then filtered using a sophisticated water filtration system, which removes microbiological and chemical pollution.

The water is then remineralized using CSIR-IICT patent technology before being bottled and packaged in Aria LifeWater's low-energy consumption bottling facility. While producing water, the water generator delivers air cooling to the plant, obviating the need for industrial air conditioning. The devices here can generate around 2,000 liters of water per day, while a single air water generator requires 10 kW per day.

Published in:
Siasat

Indian Scientists Produce Clean H2 With Carbon Capture Efficiency of 99.58%

CSIR-IICT

21st April, 2022

A group of scientists from CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, have designed a hybrid material to simulate capturing carbon dioxide in-situ (onsite) and converting it into clean hydrogen from non-fuel grade bioethanol. The research details were published in the Elsevier scientific journal Chemical Engineering and Processing.

In a first for India, the scientists developed a fluidized bed reactor (FBR) facility in Hyderabad to perform sorption enhanced steam methane reforming (SESMR) to achieve clean hydrogen in its purest form. The facility was commissioned at CSIR-IICT in January this year.

The facility was commissioned under a Mission Innovation Project supported by the Department of Science and Technology.

The FBR system measures the performance of dual-functional materials for SESMR. The sorption enhanced steam methane reforming allows certain advantages of onsite carbon dioxide removal through sorbents, thereby overcoming the equilibrium restrictions of steam reforming, leading to clean hydrogen production.

The procedure

The researchers conducted a thermodynamic investigation using Aspen plus models (imperative programming language to study scientific computation) to discover two scientific schemes so that high purity hydrogen could be produced from non-fuel grade bioethanol.

The two schemes are based on the sorption process where a gas or vapor (sorbate) is captured or fixated by a substance in a condensed state (solid or liquid) called sorbent. The two methods studied by the team are chemical looping combustion (CLC) integrated processes; sorption enhanced steam reforming (CLC-SESR) and sorption enhanced chemical looping reforming (CLC-SECLR).

The two schemes are energy-wise self-sustainable. The heat and power demand in the two processes are achieved by integrating them with heat recovery, steam generation, and power generation mechanisms. 99.13% and 99.58% efficiency in carbon capture

The efficiency of carbon capture achieved by the IICT scientists was 99.13% and 99.58%. The purity level of hydrogen obtained in the process was 99.15% and 99.71%, with an energy efficiency of 39.47% and 37.30%.

The optimal hydrogen yield achieved by the team was 97.38%, and 82.45% after a demonstrated efficacy of the above two schemes in facilitating low temperature reforming of partially distilled bioethanol of 14 mole % (34.5% by volume), with a concentration maintained at 550 degrees and 500 degrees celsius.

Earlier this year, scientists at the Indian Institute of Science Education and Research (IISER), Kolkata, demonstrated a strategy to synthesize novel solid absorbents, to capture and utilize carbon specifically. The group discovered particular types of nanoparticles which capture carbon dioxide in their micro and mesoporous voids.

Many research institutes across the globe are focused on studies to capture carbon and control or reduce carbon emissions. Earlier this month, a U.S.-based electric public utility company, Cleco Power, announced an allocation of $12 million to develop a carbon capture facility in Lousiana's Brame Energy Center.

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