



Prof. Uday Annapure  
Director, ICT Jalna



# Streamlining minds मागजल

Volume 4 | Issue 1 | (September-December 2021) Academic Year 2021-22

MARJ Newsletter



Prof. Aniruddha Pandit  
Vice Chancellor, ICT



## Congratulations Students...

for selection in



Ali Asger



Farhan Shaikh



Harsh Darji



Mrudav Raval

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Editor : Dr. Kapil Sagrolikar



Dasara Celebration



Pharma Lab Instrument



Tube Furnace



Brunauer-Emmett-Teller (BET) instrument



## From Director's Desk



Four MARJ students of Integrated M. Tech Batch of 2018 have been selected for the Mitacs Globalink Research Internship in renowned Canadian Universities for summer 2022. Dr Manoj Gawande and Dr Joyita Sarkar secured research grant project under DST funded Research Grant (SERB). Dr Gawande has few more accomplishments in his arsenal- publication in Nature Catalysis; being one of the top 2% scientists in the field of chemistry recognized by Stanford University; and recently bagging FMASc (Fellow of Maharashtra Academy of Science).



*Hello Everyone!*

My heart swells with the happiness and pride while informing you the news of various achievements and accomplishments ICT MARJ family bagged in this period of four months. Four MARJ students of Integrated M Tech Batch of 2018 have been selected for the Mitacs Globalink Research Internship in renowned Canadian Universities for summer 2022. Dr Manoj Gawande and Dr Joyita Sarkar secured research grant projects under DST funded Research Grant (SERB). Dr Gawande has few more accomplishments in his arsenal- publication in Nature Catalysis; being one of the top 2% scientists in the field of chemistry recognized by Stanford University; and recently bagging FMASc (Fellow of Maharashtra Academy of Science). Kudos to him for these accolades!

I would like to take into consideration the efforts put in by the faculties and the students to make a month-long Nutri Fiesta Talk series coupled with some competitions for the students from across the nation. It was very engaging and received appreciation and active participation from more than 45 educational institutions. Besides, the regular appearance of Colloquy (fortnightly event) and a one day webinar on "Raman Spectroscopy" were the co-curricular activities we carried out at MARJ.

I feel ecstatic to share this news with you that two more state-of-the-art laboratories (Food Lab and Pharma Lab) have been established at ICT

MARJ. They will definitely provide the students, research scholars, faculties and others the platform to do experiments, undertake research and take the benefits of these labs too along with other lab facilities.

The visit of ICT Registrar Prof. R R Deshmukh and OSD Mr Deepak Jadiye invigorated the MARJ Fraternity. They met all the faculty and discussed HR issues with them.

In this period of four months 2nd year students of M Tech in Food Engineering conducted a one day awareness program in Padalli village. I am happy to see social enthusiasm and responsibility the young generation is taking up voluntarily for good cause. I encourage them to go ahead with such activities and spread the awareness of all kinds. Apart from this, we celebrated Dussehra on campus and it gave us a sigh of relief to find solace in such sociocultural activity. Last but not the least, I must tell you that the new entrants of Integrated M Tech Program in Chemical Engineering for the academic year 2021-2022 were welcomed and provided all the necessary inputs to enter the ICT MARJ campus officially through Orientation cum Induction Program. And now online lectures are going on for them.

Please go through this Issue and explore various activities we carry out at our campus.

**Prof. Uday S Annapure**  
Director



## Encouragement from the Vice Chancellor



I am happy to inform you that the phase I plan of securing the allotted land and construction of academic, administrative, hostels, faculty housing and sports complex including library has been approved by the PWD of the Government of Maharashtra with a total outlay of nearly Rs.62 crores and the tendering procedure for implementation will begin soon. You would see the new planned campus taking shape in the new financial year starting from 01 April 2022.



*My dear MARJ family members,*

Let me start again by offering my sincere compliments for running the show in spite of multiple, space and financial constraints.

Under the unassuming leadership of Professor Annapure, ICT MARJ which was taking baby-step earlier is now taking big strides. With the starting of two year M Tech programme, the research scene has received a boost. The assistance of ICT Mumbai faculty in supervision and guidance of the newly admitted students are gratefully acknowledged. You would see the garnering and installation of the new analytical and research instruments. The planned creation of additional laboratory space and new classrooms have been sanctioned and the ordering and installation activities will begin soon.

ICT MARJ continues to participate in the co and extracurricular activities. I am pleased to see the enthusiastic participation of the faculty and the students, creating an ambience of learning in spite of space and infrastructure constraints.

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The planned project by Government organisations such as CIMAP Lucknow and that from Praj Industries on Mosambi Juice will again put ICT-MARJ on the Jalna map. The aim and desire of our Alumni from Aurangabad and Jalna, and their guidance and assistance in every aspect of the successfully running of the ICT-MARJ campus is gratefully acknowledged.

The ICT-MARJ is indeed marking the first step in the region and is following the USP of its parent Institute ICT-MUMBAI.

I wish you all the very best and my apologies for not visiting you in the past 1 ½ years but I assure you that this will be rectified this year.

Looking forward to your continued support and assuring you the same from our end.

Warm regards,

**Professor Aniruddha B Pandit**  
Vice Chancellor  
Institute of Chemical Technology



Academic Endeavour

Colloquy

Our fortnightly webinar series “Colloquy” has ventured in the second trimester. Despite being busy in examinations, celebrating Nutrition Month and other academic activities we still managed to venture five important and relevant talks in this series.

• **Dr Debrasad Chattopadhyay on “Cytokine Storm: Immune imbalance to Hyper-Inflammation”** (04 September 2021)

In this session, Dr Chattopadhyay gave the audience an insight regarding the Cytokine Storm and its connection to the recent Epidemic of COVID-19. It started with a brief description of VIRUS, its basic structure, and its properties. Further, he spoke about corona virus, its properties.

COMPOSITION OF VEGETABLE OILS

- Triacylglycerol (TG)
- Partial Glycerides (MG and DG)
- Free Fatty Acids
- Phospholipids (Gums)
- Waxes
- Coloring Bodies
- Odoriferous Compounds
- Unsaponifiable Matters (Minor Constituents)



ICT, Jhna

November 2021

Further, he spoke about the corona virus, its appearance, shape, variants, and source: Bats or Rodents. He also mentioned the epidemiology of COVID-19 and how the virus SARAS-COV-2 leads to the Cytokine Storm in the body. Lastly, he spoke about the interplay between the Immune System and the SARAS-COV-2, some of the medication used to treat COVID-19, and helpful home remedies to fight COVID-19 like using Ginger, Garlic, Tulsi, etc.

• **Dr Pradosh P. Chakraborti on “Oils & Fats-Food for Thoughts”** (20 November 2021)

“Food is eaten to live, not anymore!” is the way Dr Chakraborti started his talk. According to

**GLA Rich Oils**

- Evening Primrose (7-10%)
- Black Currant (15-20%)
- Borage Oil (18-26%)
- Fungal Oil (23-26%)

**Latest Developments**

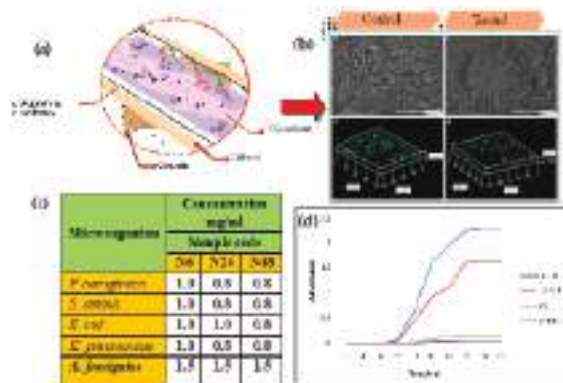
- Genetic Modification for GLA-rich Oils
- GLA from Different Fungal Oil

Available in the Market

him “this has evolved into palatability, texture, and taste.” On the one hand, his talk pondered on the necessity of Fats in our body (for vitamin K and how fats that body can synthesize) and the stereotyping, and because of it denying to intake Fats these days. On the other hand, he deliberated on cooking oil. Cooking oils from various sources such as sunflower, mustard, and groundnut were compared for their compositions.

He highlighted the benefits of using specific fatty acids on the human body. For example- Gamma-Linolenic Acid (GLA) to reduce inflammation and potential diabetic neuropathy; isoflavines to treat mammary tumors and estrogen-related diseases which is commonly found in legumes (peas, soybeans, etc.); rice bran oil to reduce bad cholesterol and triglycerides; and virgin coconut oil to trigger the body’s response towards lipid-coated viruses, like COVID-19.

• **A Session by Dr Dinesh Amalnerkar on Nanostructured Biphasic MoS2 and MoO3: Inorganic Pathways to Biofilm Inhibition and**





### Bactericidal/Fungicidal Action for Biomedical Devices and Body-Implants on 18 September 2021

Dr Amalnerkar discussed how the incessant use of antibiotics against infectious diseases has translated into a vicious circle of developing new antibiotic drug and its resistant strains in short period of time due to inherent nature of micro-organisms to alter their genes. He talked about how many researchers have been trying to formulate inorganic nanoparticles-based antiseptics that may be linked to broad-spectrum activity and far lower propensity to induce microbial resistance than antibiotics. His talk also included the way-out approaches in this direction that are inorganic nanomaterials based (i) bactericidal and (ii) bacteriostatic activities. He covered fascinating observations on microbial abatement using biocompatible & non-cytotoxic



molybdenum disulfide nanostructures (MSNs) which were synthesized by microwave assisted solvothermal route.

His talk ended with the discussion on the primary results which indicate that the synchronized formation of Mo-MoO<sub>3</sub> nanostructures in PPS-an engineering thermoplastic- may have potential antimicrobial applications in biomedical devices, body implants and storage tanks. Prima-facie results on antifungal activity are indicative of the fact that these materials can show anti-cancer behavior.

### • Mr Arya Hakimian on “Demonstration on Thermal Diffusion and Thermal Conductivity

### by C-Therm” (24 September 2021)

Mr Hakimian talked on basics of Thermal Diffusion and Thermal Conductivity. He started his talk with very basic concepts that are useful for thermal conductivity and further elaborated various techniques used for thermal properties. He covered different sensors-based methods of sample testing including MTPS, TPS and TLS. Further, the demonstration on instrument and software was discussed in this webinar and some of the key points highlighted such as direct measurement of thermal effusivity and conductivity of material can be achieved by this instrument. More specifically, TPS method employs a double-sided hot disc sensor to simultaneously determine thermal conductivity, thermal diffusivity and specific heat capacity of materials from a single measurement. TPS provides the user the greatest flexibility and control over experimental parameters and avoids the use of any contact agents. This webinar was ended with closing remarks by Dr Girish M Joshi, Associate Professor, ICT MARJ).

### • An Interactive Session by Dr Shantanu Samant on “Insights in Industrial Careers: Requirements and Expectations” (04 December 2021)

This colloquy was a dialogue between Dr. Samant and the audience. He explained the industry's different expectations and requirements for newly graduated students. He shared experiences from his time as a technologist in the industry. Sound fundamentals and thought processes were critical characteristics stressed by him.

He also explained the difference between research in the industry and academia. Industrial research and development focus on results and new product development. The result of the research is exposed to the industry's market, bringing in profit or loss. The industry expects solid teamwork from individuals. This teamwork is essential in launching a successful product. Vital employees in the industry are rotated throughout the company to get exposure, thereby grooming them for managerial positions.

According to him “during the stint in the



industry, criticism should be taken by changing the perspective you see the problem from; this reduces the blame game and instills constructive criticism within the individuals. Changing jobs within the different verticals of the industry is seen as gaining technical knowledge from the company's viewpoint. This job change will be at a lower position, but an appointment at a better company is worth the tradeoff."

- **Nutri Fiesta:** Month-Long Talk Series cum Co-Curricular Activity  
ICT MARJ organised talk series under the



headings "NUTRITEX- the Nutrition Talk Series" and "Food Fortune- the Entrepreneurial Talk Series" in the month of September 2021. It included talks by renowned personalities in the Food, Nutrition, diet and other food related fields. The talk series started with Dr Dipa Bhajekar's (Managing Director, d-technology Pvt Ltd) talk on "Discovering Entrepreneur in you". Ms Lavleen Kaur (Head Dietician & Co-founder, Diet Insight) talked on "Eat for a Real Change"; Ms Simran Kathuria (Head Dietician & Founder, The Diet Xperts) spoke on the topic "Importance of Nutrition in Adolescents"; Ms Jyoti Singh (Nutritionist and Dietician) threw light on "Nutritional Management in Adults"; Ms Neha Pande (PG Diploma in Dietetics BHSC Home Science and internationally certified Yoga instructor & Reiki Master) shared her knowledge with the students on "Lifestyle Management with Aahar Vihar Aachar Vichar (AVAV)"; and

Dr Neetika Trivedi's (Certified yoga teacher from Sri Sri School of Yoga, Bangalore) topic was "Yoga for Healthy Heart" in which she pondered on how yoga is good for heart too.

Nutri Fiesta also included various competitions for the students across India. There were 145 participants in the Poster Making Competition. Bawin Sarvana (1st rank), Sushmita M (2nd rank) and Sharmishtha Lochan Gupta (3rd rank) were the winners of Handmade poster whereas Jaisri E (1st rank), Gauri Padalkar (2nd rank) and Suvetha S (3rd rank) were the winners of digital poster making. Nutri Master- Post Event Review had the objective to discern knowledge that students have about nutrition. The winners of this event are- Rank 1- Gunjan Kulkarni and Team – Cash Prize INR 2000, Rank 2- Sangram Wandhekar and Team – Cash Prize INR 1000 and Rank 3- Nikhil Munde and Team – Cash Prize INR 500. Master Food Technologist- "Can you solve industry problems?" competition was one of the most highlighted events. Participants were given actual Industrial problems to brainstorm upon and their solutions were forwarded to the industries. This event not only developed the problem-solving approach in participants, but also helped industries with unique ideas from budding participants. Winner are- Ayush Alpesh Shah (1st Rank), Shivani Bapurao Dhembare (2nd





Rank), and Yash Charwekar (3rd rank). Nutri Chef focused on showcasing innovative food product development and cooking skills. The participants were prompted to come up with innovative healthy food ideas which utilized usable kitchen waste (vegetable/fruit peels, etc.), and were made with minimum ingredients. Winner are- Papiha Gawande who prepared Veggie Nutritious Biscuits from ICT Jalna stood first whereas Ankit Dhelriya (Dudhi Fry), ICT Mumbai, and Thiripurasundari A (Calcium and Vitamin D rich Idlli), Pondicherry University, stood second and third respectively.

The Month-long Nutri Fiesta was a grand success. The concept was conceived by ICT MARJ Director Prof Uday Annapure and made into reality by Dr Yogesh Gat and ICT MARJ students of Integrated M Tech. Shri Ashish Mantri (Director, Abhay Nutrition Pvt Ltd & Krishi I dal Pvt Ltd) sponsored the event with prize money of 14,000 and provided the event with funds for offline activities of Diet Clinic and Nutrition Awareness campaigns organized.

● **“Our Actions are our Future, Better Production, Better Nutrition, a Better Environment and Better Life”**: Celebration of World Food Day on 16 October 2021

On the occasion of World Food Day ICT MARJ organised two special virtual talks on 16 October 2021. The theme of the Day was “Our Actions are our Future, Better Production, Better Nutrition, a Better Environment and Better Life”.

The speaker for the event- Dr Jagdish Pai, Executive Director, PFNDAI- deliberated on the Food and Health related aspects as well as shared his experience in this field. The second speaker was Mr Manish Antwal, Group Founder, and Co-Director, Triple P Solutions. He discussed the Industrial and Application-based Knowledge and Technicalities and Challenges Faced in Industry. Both the speakers shared their experience in their respective fields and motivated the students. M Tech Food Technology students Srishti Dhane

and Vaidehi Shukla were the compere of the event.

● **One Day Webinar On “Raman Spectroscopy: Aiming to Create Awareness of Raman Spectroscopy Potentials”**

ICT MARJ in association with LABINDIA Instruments organized one day webinar on “Raman Spectroscopy: Aiming to create awareness of Raman Spectroscopy Potentials” on December 20, 2021 virtually on Microsoft Teams. More than 450 participants from various national and international institutions registered for the webinar. Webinar started with opening remark by Prof. Uday S Annapure (Director ICT MARJ) and Mr. Dhananjay Kulkarni (Associate



V. P., LABINDIA Instruments). Prof. Annapure discussed the importance of Raman Spectroscopy for researchers working in various domains such as polymer chemistry, material science, pharmaceuticals and many more. Along with this, he also mentioned that this instrumental facility is now open for academic and industrial research at ICT MARJ Campus.

The webinar catered four incredible talks on Raman Spectroscopy. It commenced with inaugural talk on “Sales Development and Applications Scientist at Renishaw” by Dr Shantanu Aggarwal. He started with very basic concept of electromagnetic spectrum and further elaborated on scattering phenomenon, modes of vibration, Raman spectra of various compounds and spectral imaging along with the importance of Raman Spectroscopy. The second talk was by





Dr Mukesh Ranjan (Scientific officer G, FCIPT, IPR, Gandhinagar, Gujrat). It was on Plasma produces surface for SERS applications. He introduced how plasma can be applied for pattern formation by using ion beams, ripple formation, dot pattern and scalability.

In the penultimate session Prof. Indrajit Mukhopadhyay (Senior Prof. and Head, Solar Research and Development Centre, Pandit Deendayal Energy University, Gandhinagar) talked on applications of Raman Spectroscopy in developing new materials for energy conversion and sensors. He started with brief introduction of Raman Effect including polarizability and advantages of Raman Spectra applied in energy and sensors domain. The fourth and the last talk was delivered by Dr A V R Reddy (CEO, Gemmological Institute of India, Mumbai). He covered very interesting topic “Raman Spectroscopy and its Application to Gemology”. Dr Manojkumar M Jadhao (Asst. Prof., ICT MARJ) and Ms Pooja Bhalerao (Product Manager, LABINDIA Instruments) gave concluding remarks. Dr. Girish M Joshi (Associate Prof., ICT MARJ) and his research team (Shankar Humbe, Namita Karna and Pratibha Jadhav) made efforts to arrange the webinar.

### • Mini-Symposium on “Fractional Calculus Applications in Science and Engineering”



Dr Sandip P Bhairat along with Dr K D Kuchhe, Assistant Professor of Mathematics from Shivaji University Kolhapur, organised a mini-symposium on “Fractional Calculus Applications in Science and Engineering” at the 4th International Conference on “Frontiers in Industrial and Applied Mathematics 2021” on December 21, 2021.

Dr S B Bhalekar, Associate Professor, School of Mathematics and Statistics at University of Hyderabad, was the resource person for the symposium. More than fourteen participants across India presented their research work. All the accepted papers post peer-review process will be published in the Scopus indexed ‘Springer Proceedings in Mathematics and Statistics’.

### Weekly Faculty Meet

It was a very challenging year again and needed continuous debate, discussion and brainstorming to overcome the changes related to academics. There were many decisions pertaining to the examinations, teaching and hostel accommodations that have been taken in periodic faculty meetings after discussing with Director of the institute.

All the faculty meetings have been conducted in offline mode at the institute itself. In one of

the faculty meetings we have decided to call fully vaccinated 2 year M Tech students for offline classes and their research projects.

Other issues, topics and subjects we pondered over and took timely and prompt decisions are-

1. The institute would temporarily provide hostel facility to the M. Tech. (girls) students so that they could easily adjust to the new atmosphere.



- Admission process for the First Year-Integrated M Tech students to be done through DTE, Maharashtra. The process was new to the ICT MARJ faculty and hence needed proper sensitization about the admissions process. We discussed the DTE admission process, how to plan for the advertisement for the admissions, etc.
- Conducting the Induction Program for the newly admitted integrated M.Tech students of 2021-22 batch along with Induction Program to be conducted by ICT Mumbai campus. Mumbai Campus. Dr Kapil Sagrolikar will be the Coordinator for the Program.
- Updating the ICT MARJ website.
- The major highlight of the Faculty Meet that was held on 11 October 2021. It was completely focused on HR related issues. The ICT Mumbai registrar Prof. Deshmukh and OSD Mr Jadiye were present in the meeting to address HR related issues of ICT MARJ Faculty.
- The final exam for 2 years M Tech students will be in offline mode.
- Other important issues like commencement of classes, timetable, online and offline exams, supplementary exams, placement for IPT, visiting faculty requirements, etc. were discussed in Faculty Meet.

All the minutes of meetings were circulated to all the faculty members from time to time. Overall, the regular faculty meetings are really productive methods of deciding vital things.

### Induction cum Orientation Program for Integrated M Tech students of 2021-22 Batch

Induction cum Orientation Program for the newly admitted students of Integrated M Tech program (Batch of 2021-22) was conducted in two phases. Firstly, it was held from 07-11 December 2021 along with the ICT Mumbai campus and then separately from 03-06 January 2022 at Institute of Chemical Technology Marathwada Campus Jalna.

In the first phase the students were introduced to the ICT Mumbai campus, its administration, academic life and student life. In the second phase they were introduced to the ICT MARJ campus, its infrastructure, academic life and the faculty.

The program focused on the initial addresses by Prof. A B Pandit (Vice-Chancellor) followed by an address from Prof. R R Deshmukh (Registrar) and Prof. S S Bhagwat (Dean Academic Program), who gave the welcome address to students into the course. ICT MARJ Director Prof. U S Annature welcomed MARJ students, briefed them about the inception and growth of the MARJ campus, future prospects and planning.

Afterwards, various deans (Prof. R V Adivarekar, Dean Human Resources, Department of Fibres & Textile Processing Technology; Prof. V N Telvekar, Dean Internal Quality Assurance, Department of Pharmaceutical Sciences & Technology; Prof. P V Devrajan Dean Research & Innovation, Department of Pharmaceutical Sciences & Technology; Prof. P Gogate, Controller of Examination, Department of Chemical Engineering; and Prof. P D Amin, Dean Student Affairs, Department of Pharmaceutical Sciences & Technology) of the committees interacted with the newly admitted students. From MARJ campus Sharad Lahoti sir gave an overview of In-Plant Training (IPT), the most unique feature of MARJ campus. Dr Manoj Gawande (Dean, Infrastructure and Campus Development, department of Industrial & Engineering Chemistry) took the students on a virtual tour of the various laboratory, academic, research and a few newly installed state-of-the-art analytical techniques of MARJ campus. Dr Parag Nemade (Dean Academic, Hostel Head



Warden, Deputy Director, ICT MARJ, department of Chemical Engineering) gave complete insight into the course which included the grading patterns, various subjects which students are going to learn in each trimester followed by the method of internal assessment and end trimester examination. Faculty-student interaction was the highlight of the program too.

The induction program also catered talks by Madhavi Wadkar madam on Library and IPC; Prof. P D Jain on social media & publicity platform of ICT; UAA President Prof. S Mehendale on the role and importance of UAA; and Prof. A R Athalye on Introduction to VTPA.

The program had a couple of special sessions where GS, CRs and Club Coordinators would interact with the new entrants and make them feel home at MARJ. Krutarth Pandit (General Secretary for Technological Association ICT MARJ, 4th Year Integrated M Tech) spoke a few words on various activities of TA at institute which was concluded by talk & introduction of class representatives of senior batches where Krutarth Pandit (A Y 2018-19), Mr Aditya Deshpande



(A.Y. 2019-20) and Ms Jyoti Soni (A Y 020-21) had a small talk with students.

The induction program also included sessions by Ms Malini Shah on "Counselling" and Dr Rama Iyer's on "Ethics and Communication".

Towards the end of the program Viraj Patil who is the secretary of Technological Association (TA) briefed all the students about MIS system. Krutarth showed the E-Library platform of ICT MARJ and insights into various e-learning platform facilities available to students. The session was closed by general discussion with students for any doubts related to campus, culture, facilities, environment and more importantly academics.

Dr Kapil Sagrolikar was the overall coordinator of the program whereas Ms Hiteshree Sarode (student of 2019-20 batch), Mr Harsh Darji (student of 2018-19 batch) and Mr Krutarth Pandit (student of 2018-19 batch) were the compere of the program.

**IPT****IPT-3 BATCH 2019 FROM 15th SEPTEMBER To 31st DECEMBER 2021**

Sr.No	Roll No	Student Name	Industry / Home Project
1	J18IMT611	Shreya Shailesh Shahapure	Ajanta Pharma Ltd Waluj
2	J19IMT601	Abhay Vijay Gandhi	Nano-Diamond Batteries (NDB), the Future of Power Generation Under Dr Nagsen Meshram
3	J19IMT602	Abhinav Sanjayrao Tidke	Mapro Foods Pvt Ltd Wai
4	J19IMT603	Abhishek Satish Ighare	Rathi Steel & Metal Pvt Ltd (Icon Steels) Jalna
5	J19IMT604	Aditya Abhijeet Deshpande	Dinshaw Foods Pvt Ltd Nagpur
6	J19IMT605	Aditya Ajay Samdani	JB Chemicals & Pharmaceuticals Ltd Panoli Gujarat
7	J19IMT606	Aditya Vijay Shinde	Indian Rare Earths Ltd Ganjam Odisha.
8	J19IMT607	Aditya Deepak Toshniwal	Tulsi Paints Pvt Ltd Nanded
9	J19IMT608	Aniket Sanjay Shitole	Dr BR Ambedkar Sugar Factory Osmanabad
10	J19IMT609	Aradhana Thombare	Thakurji Solvex Pvt Ltd Jalna
11	J19IMT610	Arti Hajare	Extraction of Lanthanide and Actinide from Nuclear Waste: A Modelling Study Under Dr Debashis Kundu
12	J19IMT611	Aryan Saldhana	Biofuels from waste under Dr Sameena Naaz Malik/ IPCA Labs Ltd
13	J19IMT612	Ashish Sagare	Glatt Pvt Ltd, Thane
14	J19IMT613	Ayush Gulhane	Application of novel permeation enhancers in transdermal drug delivery system Under Dr Navnath Hatvate
15	J19IMT614	Ayush Pawankumar Redasni	AMUL Dairy, Anand, Gujarat
16	J19IMT615	Darshan Surendra Munot	Patanjali Ayurved Haridwar
17	J19IMT616	Mrudul Nilesh Shroff	Indo Amines Ltd Mumbai
18	J19IMT617	Debasmit Ganda	Effective H <sub>2</sub> generation using pollutant of industry water in real world conditions - Dr Somen Mondal
19	J19IMT618	Devvrat Kailas Thattekar	Garware Hi Tec Films Ltd Aurangabad
20	J19IMT620	Farooqui Md Altamash	Mapro Foods Pvt Ltd Wai
21	J19IMT621	Gauri Ladda	Thakurji Solvex Pvt Ltd Jalna
22	J19IMT622	Harsh Jaiswal	RCF Ltd Chembur
23	J19IMT623	Harshraj Sanjay Borude	Laxmi Cotspin Ltd Jalna
24	J19IMT624	Himanshu Mahesh Nagnure	Advancement in Li-ion battery- Dr Nagsen Meshram


**IPT-3 BATCH 2019 FROM 15th SEPTEMBER To 31st DECEMBER 2021**

Sr.No	Roll No	Student Name	Industry / Home Project
25	J19IMT625	Hrushikesh Chnadodkar	JB Chemicals & Pharmaceuticals Ltd Panoli Gujarat
26	J19IMT626	Jidnyasa Chintamani	Concept Pharamaceuticals Ltd Chikalhana
27	J19IMT627	Saraya Santhosh Nair	Indian Rubber Mfrs Research Org. Thane (IRMRO)
28	J19IMT628	Ketaki Vipul Patil	Mapro Foods Pvt Ltd Wai/ MGM Food & Dairy Industries Gandheli Agbad
29	J19IMT629	Khushal Rohit Agarwal	RCF Ltd Chembur
30	J19IMT630	Shruti Dinesh Patil	Mapro Foods Pvt Ltd Wai
31	J19IMT631	Manan Nilesh Modi	Jayant Specialities Pvt Ltd Mumbai
32	J19IMT632	Vrushank Jitendra Dhake	Suhans Activated Alloys Jalgaon
33	J19IMT633	Manthan Kulkarni	IPCA Labs Ltd Waluj
34	J19IMT634	Pratik Khurpe	Mapro Foods Pvt Ltd Wai
35	J19IMT635	Omkar Santosh Muley	Deepak Nitrite Ltd Vadodara
36	J19IMT636	Omkar Prakash Shetye	Home Project under Dr Sandip Bhairat
37	J19IMT637	Piyusha Sunil Warade	Ajanta Pharma Ltd Waluj
38	J19IMT638	Prajakta Ukhale	Mapro Foods Pvt Ltd Wai
39	J19IMT639	Pratham Manish Shah	Asian Azoles Pvt Ltd Vapi Gujarat
40	J19IMT641	Priti Shyamsundar Mantri	AMUL Dairy, Anand Gujarat
41	J19IMT642	Raj Lalasaheb Wagh	Mathematical Modeling of ultrasonic emulsification under Dr Atul Bari
42	J19IMT643	Ranveersingh Pritamsingh Suryawanshi	Mapro Foods Pvt Ltd Wai
43	J19IMT644	Ritesh Patil	Glatt Pvt Ltd , Thane
44	J19IMT645	Rohan Thota	Online IPT Research - IIT Indore
45	J19IMT646	Sakshi Tak	Zero Plast Labs Pvt Ltd,400, NIP Venture Centre Pashan Pune ( NCL Assisted)
46	J19IMT647	Sanket Sanjay Banchod	Garware Hi Tech Films Ltd Aurangabad
47	J19IMT648	Santosh Zol	Modelling Foam enhanced oil recovery. Under Dr Atul Bari
48	J19IMT649	Sarang Subhashchandra Shindalkar	Triviological issues of engineering plastics Under Dr Girish Joshi
49	J19IMT650	Sarika Kulkarni	United Phosphorous Ltd Kalol Gujarat
50	J19IMT651	Sarvesh Wadkar	Indo Amines Ltd Mumbai

**IPT-3 BATCH 2019 FROM 15th SEPTEMBER To 31st DECEMBER 2021**

Sr.No	Roll No	Student Name	Industry / Home Project
51	J19IMT652	Shreya Prashant Yeole	Study of polymer surfactants for fabrication of nanocomposites Under Dr Girish Joshi
52	J19IMT653	Shrikant Eknath Khandebharad	Laxmi Cotspin Ltd Jalna
53	J19IMT654	Sumit Nanasaheb Ingle	Mapro Foods Pvt Ltd Wai
54	J19IMT655	Tanisha Sanjay Patni	Mapro Foods Pvt Ltd Wai
55	J19IMT656	Tejas Gadade	Laxmi Cotspin Ltd Jalna
56	J19IMT657	Tejas Rahul Jairange	Mapro Foods Pvt Ltd Wai
57	J19IMT658	Unmesh Uddhav Thorve	Patanjali Ayurved Haridwar
58	J19IMT659	Unnati Rameshwar Agrawal	United Phosphorous Ltd Kalol Gujarat
59	J19IMT660	Vaishnavi Kantarao Deshmukh	Kalash Seeds Pvt Ltd Jalna
60	J19IMT661	Vaishnavi Suraj Patil	Mapro Foods Pvt Ltd Wai
61	J19IMT662	Vaishnavi Phirke	Chemvera Speciality Chemicals Pvt Ltd Mumbai
62	J19IMT663	Amruta Prabhakar Dongre	Hygienic Research Institute Pvt Ltd Mumbai
63	J19IMT664	Soham Vikrant Kawale	Sula Wines Pvt Ltd Nashik
64	J19IMT665	Atharva Sanjay Waghmare	Mapro Foods Pvt Ltd Wai

**IPT- 4 Batch-2018 FOR IPT-4 1st September to 31st December 2021**

SN	First Name	Last Name	Roll No.	Name of Industry / Home Project
1	Harsh	Darji	J18IMT601	Home Project Under Dr Gawande
2	Ashutosh	Darak	J18IMT602	Alkem Laboratories Ltd Sikkim
3	Bhavesh	Dayma	J18IMT603	Parle Biscuits Pvt Ltd Nasik
4	Farhan	Shaikh	J18IMT604	SASMIRA Mumbai
5	Aum	Chaudhari	J18IMT605	RB CFPB Lab SNTD Mumbai
6	Hiteshree	Sarode	J18IMT606	Mapro Foods Pvt Ltd Wai
7	Adarsh	Chhabda	J18IMT607	Harman Finochem Ltd Shendra
8	Parth	Khandagale	J18IMT608	Snowtech Equipments Pvt Ltd Mumbai
9	Harshal	Kasat	J18IMT609	ARHA Foods Nasik
10	Aditya	Bhalerao	J18IMT610	Ajanta Pharma Ltd Waluj
11	Abhishek	Mote	J18IMT612	CSIR-CIMFR Dhanbad
12	Janhavi	Dhumal	J18IMT613	Kalash Seeds Pvt Ltd Jalna
13	Aman	Patni	J18IMT614	Garware HiTech Films Ltd Aurangabad
14	Mrudav	Raval	J18IMT615	Vadilal Industries Ltd Gandhinagar
15	Ravinutala	Shivani	J18IMT616	Indian Institute Of Chemical Technology Hyderabad


**IPT- 4 Batch-2018 FOR IPT-4 1st September to 31st December 2021**

SN	First Name	Last Name	Roll No.	Name of Industry / Home Project
16	Vedant	Joshi	J18IMT617	Indian Oil Corp Ltd Panipat Refinery
17	Pratap	Gurav	J18IMT618	Gharda Chemicals Ltd & Vinati Organics Ltd Chiplun
18	Vedant	Kulkarni	J18IMT619	Orthocrafts Innovations Pvt Ltd Pune ( NCL Assisted)
19	Raunak	Dayma	J18IMT620	Adonia Cosmetics Pvt Ltd Atgaon East. Shahapur Thane
20	Piyush	Dhage	J18IMT621	SASMIRA Mumbai
21	Prajwal	Jadhav	J18IMT622	Chemvera Speciality Chemicals Pvt Ltd Mumbai
22	Dhananjay	Nagre	J18IMT623	Ajanta Pharma Ltd Waluj
SN	First Name	Last Name	Roll No.	Name of Industry / Home Project
23	Bhumi	Borade	J18IMT624	Conversion of Carbon Dioxide to Chemicals - Under Dr Manoj Gawande
24	Krutarth	Pandit	J18IMT625	Snowtech Equipments Pvt Ltd Mumbai
25	Aman	Tamboli	J18IMT626	Study of polymer surfactants for fabrication of nanocomposites Under Dr Girish Joshi
26	Utkarsh	Patodi	J18IMT627	Shreeyam Power & Steel Ind.Ltd Mithirohar Gandhidham Guj.
27	Ali	Asger	J18IMT628	Amata Green - Online IPT
28	Atharva	Jahagirdar	J18IMT629	Orthocrafts Innovations Pvt Ltd Pune ( NCL Assisted)
29	Karan	Sharma	J18IMT630	CSIR-CIMFR Dhanbad
30	Shreyash	Deshmukh	J18IMT631	BARC Mumbai- Project under Dr Somen Mondel
31	Ayush	Deore	J18IMT632	BARC Mumbai-Project under Dr Somen Mondal
32	Harsha	Kasliwal	J18IMT633	Mac Chem Products Tarapur Boisar Thane
33	Sakshi	Jatkar	J18IMT634	Transpek Silox Industry Pvt Ltd Vadodara
34	Vishwas	Erulkar	J18IMT635	Alkem Laboratories Ltd Sikkim
35	Rohan	Wankhede	J18IMT637	JSW Paints Pvt Ltd VASIND
36	Akshat	Bedmutha	J18IMT638	Fit-Shit Health Solution Sakinaka Mumbai
37	Vaidehi	Patil	J18IMT639	Mapro Foods Pvt Ltd Wai
38	Rohit	Chaudhari	J18IMT640	Lupin Ltd Aurangabad
39	Manthan	Dixit	J18IMT641	Indian Oil Corp Ltd Panipat Refinery
40	Adwait	Sawant	J18IMT642	Gharda Chemicals Ltd & Vinati Organics Ltd Chiplun
41	Urvi	Parlikar	J18IMT643	Lupin Ltd Aurangabad

**IPT- 4 Batch-2018 FOR IPT-4 1st September to 31st December 2021**

SN	First Name	Last Name	Roll No.	Name of Industry / Home Project
42	Smith	Patil	J18IMT644	ARHA Foods Nasik
43	Ameya	Mantri	J18IMT645	Shreeyam Power & Steel Ind.Ltd Mithirohar Gandhidham Guj.
44	Prasad	Lakade	J18IMT646	Mondeles India Foods Pvt Ltd Induri Pune
45	Nikhil	Umale	J18IMT647	Bhagyalaxmi Rolling Mills Pvt Ltd
46	Sachin	Adhe	J18IMT649	Concept Pharmaceuticals Ltd Aurangabad
SN	First Name	Last Name	Roll No.	Name of Industry / Home Project
47	Siddhant	Unde	J18IMT650	Mapro Foods Pvt Ltd Wai
48	Vishnu	Pradeep	J18IMT652	Hebbar Chemicals Pvt Ltd Mumbai.
49	Aniket	Pinjari	J18IMT653	Mapro Foods Pvt Ltd Wai
50	Yogesh	Mhetre	J18IMT654	Alkem Laboratories Ltd Sikkim
51	Lekharaj	Mahajan	J18IMT655	Garware HiTech Films Ltd Aurangabad
52	Gargi	Patil	J18IMT656	Transpek Silox Industry Pvt Ltd Vadodara
53	Kartik	Ghate	J18IMT657	Patanjali Ayurved Haridwar
54	Harshal	Kavhale	J18IMT658	Patanjali Ayurved Haridwar
55	Shrenik	Bakhda	J18IMT659	Chemvera Speciality Chemicals Pvt Ltd Mumbai

**BATCH 2020 IPT-1 HOME PROJECT ( 7 OCTOBER TO 18 NOVEMBER 2021)**

SN	Name2	Roll No.	Title of Home Project	Faculty
1.	Avishkar Suradkar	J18IMT651	Li-Ion Battery Technologies for Electric Vehicles	Dr Nagsen Meshram
2.	Pratik Bangar	J19IMT640	Solar energy	Dr Saurav Raj
3.	Abhilasha pravin shastri	J20imt601	Numerical solutions for ordinary and partial differential equations using tri- diagonal matrix algorithm.	Dr Srimanta Maji
4.	Aditya Vishram Desai	J20IMT602	Alginate dressing incorporated with plant based antimicrobials for wound healing.	Dr Joyita Sarkar
5.	Advait Mandlik	J20IMT603	Li-Ion Battery Technologies for Electric Vehicles	Dr Nagsen Meshram
6.	Aiyshwaryalakshmi	J20IMT604	Alginate dressing incorporated with plant based antimicrobials for wound healing.	Dr Joyita Sarkar
7.	AJAZ KHAN	J20IMT605	Design and engineering of metal organic frameworks(MOFs) for energy applications	Dr Manoj Gawande





SN	Name2	Roll No.	Title of Home Project	Faculty
8.	Akhil Nair	J20IMT606	Development of novel processes to synthesize Ciprofloxacin or intermediate at kg scale	Dr Navnath Hatwate
9.	Amrut Umesh Chavan	J20IMT607	Role of advanced materials in waste water treatment - A urgent need for the society	Dr Manoj Gawande
10.	Amruta Bhanudas Phegade	J20IMT608	Alginate dressing incorporated with plant based antimicrobials for wound healing.	Dr Joyita Sarkar
11.	Ananya Sathe	J20IMT609	Synthesis of gas-liquid foams using inline mixer.	Dr Atul Bari
12.	Atharva Nilkanth	J20IMT610	Design and engineering of metal organic frameworks(MOFs) for energy applications	Dr Manoj Gawande
13	Deep Sandikar	J20IMT611	Plastic Waste Valorisation – An Effective Way for the Sustainable and Greener Future	Dr Manoj Gawande
14	Devansh Pathak	J20IMT612	Design and engineering of metal organic frameworks(MOFs) for energy applications	Dr Manoj Gawande
15	Hridaay Purnesh Eppaturi	J20IMT613	Nanomaterials/Nanofibres and it's application	Dr Sameena Malik
16	Jyoti Soni	J20IMT614	Design and engineering of metal organic frameworks(MOFs) for energy applications	Dr Manoj Gawande
17	KABIR RAUT	J20IMT615	Plastic Waste Valorisation – An Effective Way for the Sustainable and Greener Future	Dr Manoj Gawande
18	Khushwantsingh Rajput	J20IMT616	Li-Ion Battery Technologies for Electric Vehicles	Dr Nagsen Meshram
19	Km Ankita Singh	J20IMT617	Synthesis of gas-liquid foams using inline mixer.	Dr Atul Bari
20	Mahesh uttam kshirsagar	J20IMT618	Recent developments in computer vision system to assess subjective quality of food products	Dr Yogesh Gat
21	Prachi Gajanan Patil.	J20IMT619	Numerical solutions for ordinary and partial differential equations using tri- diagonal matrix algorithm.	Dr Srimanta Maji
22	Pranjal Ambhore	J20IMT620	Alginate dressing incorporated with plant based antimicrobials for wound healing.	Dr Joyita Sarkar
23	Pruthvi Sandeep Marathe	J20IMT621	Catalytic Hydrocracking of polymers	Dr Atul Bari



SN	Name2	Roll No.	Title of Home Project	Faculty
24	Rohit Arun Pawar	J20IMT622	Nanomaterials/Nanofibres and it's application	Dr Sameena Malik
25	Sanika Rajendra Raut	J20IMT623	Synthesis of gas-liquid foams using inline mixer.	Dr Atul Bari
26	Satkirti Nivratti Chame	J20IMT624	Role of advanced materials in waste water treatment - A urgent need for the society	Dr Manoj Gawande
27	Shaikh Rehan	J20IMT625	Impact of COVID on consumer demands and trends in food processing	Dr Yogesh Gat
28	Sharjil khan	J20IMT626	Li-Ion Battery Technologies for Electric Vehicles	Dr Nagsen Meshram
29	Varun Shastri	J20IMT627	Li-Ion Battery Technologies for Electric Vehicles	Dr Nagsen Meshram
30	Shubham Ankush Ghuge	J20IMT628	Solar energy	Dr Saurav Raj
31	Sudhanshu Vyawahare	J20imt630	Artificial intelligence for precision farming and food manufacturing	Dr Yogesh Gat
32	Tejas Gorkar	J20IMT631	Solar energy	Dr Saurav Raj
33	Tejaswini Giri	J20IMT632	Solar energy	Dr Saurav Raj
34	Utkarsha Tayade	J20IMT633	Impact of COVID on consumer demands and trends in food processing	Dr Yogesh Gat
35	Vaishnavi Dadasaheb Bhutekar	J20IMT634	Plastic Waste Valorisation – An Effective Way for the Sustainable and Greener Future	Dr Manoj Gawande
36	VARAD DESHPANDE	J20IMT635	Impact of critical process parameters on 3D food printing	Dr Yogesh Gat
37	Vasudeo ram wange	J20IMT636	impact of critical process parameters on 3D-food printing.	Dr Yogesh Gat
38	Vasudha Daulatrao Patil	J20IMT637	Polymet gels for domestic applications	Dr Girish Joshi
39	Garima Thole	J20IMT638	Impact of COVID on consumer demands and trends in food processing	Dr Yogesh Gat
40	Govind Adhe	j20IMT639	Solar energy	Dr Saurav Raj
41	Kaustubh Mene	J20IMT641	Impact of COVID on consumer demands and trends in food processing	Dr Yogesh Gat



SN	Name2	Roll No.	Title of Home Project	Faculty
42	Radhika Taur	J20IMT643	Role of advanced materials in waste water treatment - A urgent need for the society	Dr Manoj Gawande
43	Narsingh Kalyan Kumbhar	J20IMT644	Recent developments in computer vision system to assess subjective quality of food products	Dr Yogesh Gat
44	Vaishnavi Tulsidas Gajare	J20IMT645	Alginate dressing incorporated with plant based antimicrobials for wound healing.	Dr Joyita Sarkar
45	DURVESH VILAS PATIL	J20IMT646	Polymet gels for domestic applications	Dr Girish Joshi

## Achievement



### Dr Manoj B Gawande elected as Fellow of Maharashtra Academy of Sciences (FMASc)

It gives us immense pleasure to share with you that Dr Gawande was elected as Fellow of the Maharashtra Academy of Sciences (FMASc) in chemical sciences by the annual general meeting held on 12 November 2021, led by Prof. G D Yadav (President). The Maharashtra Academy of Sciences is the premier scientific learned society of the state of Maharashtra. It was established in 1976 with the specific aim to highlight the

scientific and technological issues confronting the state.

### Dr Manoj B Gawande featured in Stanford University's global list of top 2% scientists for the year 2020 in the Chemistry field

We are delighted to share with you that Dr Gawande featured in Stanford University's global list of top 2% Scientists in Career and Single year ranking, with Institute of Chemical Technology, Marathwada Campus, Jalna affiliation for the year 2020 in the field of Chemistry. We



congratulate him for achieving this feat. (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3/files/d1a08dbe-1a4d-4d9f-942e-5a78bc7afde5>)

### Dr Gawande's research work highlighted in the "Nature Catalysis" (one of the top most journals in Nature Family)

Researchers from LIKAT, Germany, RCPTM, Czech Republic and ICT, Mumbai Marathwada Campus, Jalna India have published the work related to the development of Fe-based heterogeneous catalysts for the hydrogenation of nitriles in a notable journal, Nature Catalysis.

With this work Dr Gawande (FRSC, FICS) has involved with the research groups of Prof. Jagadeesh Rajenahally and Prof. Matthias Beller, from Germany, and Prof. Radek Zbořil from the Czech Republic, and made significant contribution for the advanced characterization of this novel Fe-catalysts and related materials.

According to him "the unique design of the Fe/Fe-O@SiO<sub>2</sub> core-shell catalyst employed for the hydrogenation of structurally challenging and functionally diverse aromatic, heterocyclic, aliphatic, and fatty nitriles to produce primary amines has been performed under scalable and industrially viable conditions. This cost-effective and sustainable technology certainly opens the door for other industrial important organic transformations."

#### Details of Research Work:

Silica supported Fe/Fe-O nanoparticles for the catalytic hydrogenation of nitriles to amines in the presence of aluminium additives.

V G Chandrashekhar, T Senthamarai, R G Kadam, O Malina, J Kašlík, R Zbořil, M B Gawande, R V Jagadeesh, M Beller, Nature Catalysis, 2021. DOI: 10.1038/s41929-021-00722-x.

### Selection of ICT MARJ Students for MITACS Globalink Research Internship for Summer 2022

We are delighted to inform you that four ICT MARJ students of Integrated M Tech Batch of 2018 have been selected for the Mitacs Globalink Research Internship in renowned Canadian Universities for Summer 2022.

Mitacs Globalink Research Internships is a

competitive initiative for undergraduates from Australia, Brazil, China, Colombia, France, Germany, Hong Kong, India, Mexico, Pakistan, Taiwan, Tunisia, Ukraine, United Kingdom and the United States.

The internship is a 12-week program where

Sr.	Name of student	Project title	Canadian University
1	Harsh Darji	MOFs and ZIFs as dual functional adsorbents/catalysts (DFA/Cs) for sustainable chemical processes, environmental protection, and clean energy	University of Northern British Columbia – Prince George
2	Farhan Shaikh	Carbon Capture Research: pKa and Properties of Novel Solvents	University of Regina – Regina
3	Ali Asger	Process Systems Engineering	University of Waterloo – Ontario
4	Mrudav Raval	Dietary Fibres and polyphenols in foods; chemical interactions and nutritional consequences	University of Ottawa- Ottawa



students have an opportunity to work under professors in Canada according to their respective project and the program provides for student expenses funded by Mitacs. These students will work under the supervision of outstanding faculty members of Canadian Universities and access Canada's unique research landscape.

It is indeed a proud moment for us that at such a young age our students think and achieve such a feat. They are undoubtedly aiming at a global level research opportunities.

We, the ICT MARJ fraternity once again congratulate the award winners and their mentors.

## Extension Activities

### Prof. Uday S Annapure

On the occasion of World Food Day on 16 October 2021 ICT MARJ Director Prof Uday S Annapure has been the Chief Guest and Keynote speaker at two different institutions. He was the keynote speaker at a National Webinar on Food Processing, Business and Career Opportunities in Food Technologies. This webinar was organized by College of Food Technology Yavatmal. Prof. Annapure delivered his keynote address on the topic Non-Thermal Food Processing.

Prof. Annapure inaugurated the event, launched Foodtech Pathshala (online portal) and also welcomed Volume 2 of Purnabrahma Magazine.

**Dr Girish Joshi** was an Invited Speaker in the International workshop at BVRIT Hyderabad. His talk was on "Polymer Nanocomposites for Energy Applications". It was a Five Day International Online Workshop on Advanced Materials in Innovative Technology (AMITY 2021) from 14 to 18 December 2021. It was organised by Department of Physics, BVRIT Hyderabad (College of Engineering for Women Hyderabad). It was covered with the latest photo sensitive devices prepared by using the polymer nanocomposites. It was well appreciated by more than 100 participants. Final discussion on engineering the dielectric materials was key attraction for the audience.

He has been the Chief Guest at the World Food Day organized by Chamber for Advancement of Small and Medium Business, Pune Chapter. The theme of the program was Zero Hunger.

### Expertise shared by Dr Girish Joshi

- Board of studies meeting in the Engineering



Physics as subject expert attended at NMIMS, Mumbai, held on August 30, 2021.

- Scientific Proposal Expert for the polymer domain- Rajeev Gandhi Science and Technology Commission, Govt. of Maharashtra, December 2021.
- External thesis viva conducted as subject expert at Chemical Engineering Department., Thapar University, Patiyala, Punjab on 09 December 2021.

**Dr Manoj B Gawande** was invited as a Keynote speaker in AICTE ATAL FDP program and Nanotech International Conference -Eurasia 2021.



Dr Gawande, Associate Professor of Chemistry at ICT MARJ, delivered an expert talk through online mode in the AICTE ATAL FDP program on the topic entitled, “Nanoscience and Nanotechnology: Current Perspectives in Nanomaterials Synthesis and Characterizations” on 9 November 2021. It was organized by Dr Babasaheb Ambedkar Marathwada University, Aurangabad. His talk emphasized basic concepts of nanotechnology, recently emerging synthetic techniques of nanomaterials, characterization, and advanced catalytic applications of various

types of nanomaterials including single-atom catalysis.

He delivered another exciting talk virtually on “Single-Atom Catalysts: Synthesis and Applications” at the international conference “Nanotech Eurasia 2021”. It was organized by Khazar University on 17-18 December 2021. He talked on the advances in the engineering and applications of emerging single atom catalysts which acts as a bridge between homo- and heterogeneous catalysis.



**Dr Saurav Raj** delivered invited talk on “Introduction of MATLAB Programming” on 16 November 2021. It was organized on the occasion of SRM Institute of Science and Technology, Ghaziabad. He discussed basic programming of MATLAB. He also deliberated and shown on practical implementation of MATLAB programming. He received good response from the audience and also a letter of appreciation by the organizer.



## Project and Grants

### Two ICT MARJ Faculties Bagged DST funded Research Grant under SERB

Another milestone in the DST funding acquisition recently achieved by Dr Manoj B Gawande, Associate professor, and Dr Joyita Sarkar, Assistant Professor, ICT MARJ. Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India has sanctioned research grant projects to them. Congratulations to both the esteemed faculties of MARJ.

1. Dr Gawande, principal investigator, received project grant by Science and Engineering Research Board (SERB), DST, Govt. of India for his project titled “Carbon Nitride-based Single Atom Photocatalysts for Advanced Applications”. The aim of the project is to design and fabrication of advanced carbon nitride-based single atom catalysts for

photocatalytic organic reactions, energy and environmental applications. The funding for this project is done under the Core Research Grant scheme for a period of three years with a grant amount of more than Rs.35 lakhs.

2. Dr Sarkar bagged a start-up research grant for her project titled “3D In Vitro Non-Alcoholic Fatty Liver Disease Model with Epigenetically Differentiated Stem Cells on Polymeric Scaffolds with Tuned Stiffness”. It is a two year venture. Her project shall develop an in vitro 3D Non-alcoholic fatty liver disease model using Wharton’s jelly derived human stem cells. Further this will be differentiated to hepatic lineage by epigenetic modifications. In addition to this, the scaffold used to culture the cells will have tuned stiffness for efficient differentiation of stem cells as well as mimicking of steatosis associated with fibrosis.

## Journal articles Publications

### • Dr Girish M Joshi

#### • Book Edited and Published

Shankar Humbe, Girish Joshi, Namita Karna. Processing & Recycling of Polymer Plastic for Environment Applications. Polymer Plastic Recycling, Lambert publication, 31 August 2021

#### • Journal Articles Publications:

1. Girish Joshi, Photosensitivity of Graphene Quantum Dots Dispersed Polyvinyl Butyral Nanocomposites. Indian Journal of Pure & Applied Physics (IJPAP) 59 (11), 775-778
2. Girish Joshi, Sustainable chemical preventive models in COVID-19:

Understanding, innovation, adaptations, and impact, Journal of the Indian Chemical Society 98 (10), 100164

### • Dr Manoj B Gawande

#### • Journal Articles Publications:

1. Silica-supported Fe/Fe–O nanoparticles for the catalytic hydrogenation of nitriles to amines in the presence of aluminium additives, V G Chandrashekhar, T. Senthamarai, R G Kadam, O. Malina, J. Kašlík, R Zbořil, \* Manoj B Gawande, \* R V Jagadeesh,\* and M Beller,\* Nature Catalysis, 2021, DOI: 10.1038/s41929-021-00722-x. (IF-41.81)



2. Editorial Board Member Current Catalysis, 2021, Vol. 10, No. 3, 163-164.
3. Reusable Co-nanoparticles for general and selective N-alkylation of amines and ammonia with alcohols, Zhuang Ma, Bei Zhou, Xinmin Li, Ravishankar G. Kadam, Manoj B. Gawande, Martin Petr, Radek Zbořil, Matthias Beller, and Rajenahally V. Jagadeesh\* Chemical Science, 2022, 13, 111-117 (IF-9.82)
4. Single-Atom (Iron-Based) Catalysts: Synthesis and Applications, Baljeet Singh, Manoj B. Gawande\*, Arun D. Kute, Rajender S. Varma, Paolo Fornasiero, Peter McNeice, Rajenahally V. Jagadeesh, Matthias Beller\*, and Radek Zbořil\* Chemical Reviews, 2021, 121 (21), 13620-13697 (IF- 60.62)
5. Efficient and sustainable Co<sub>3</sub>O<sub>4</sub> nanocages based nickel catalyst: A suitable platform for the synthesis of quinoxaline derivatives, Aditi Sharma, Ranjana Dixit, Shivani Sharma, Sriparna Dutta, Sneha Yadav, Bhavya Arora, Manoj B. Gawande\*, and Rakesh K Sharma Molecular Catalysis, 2021, 504, 111454. (IF-5.06)
6. An Advanced Plasmonic Photocatalyst Containing Silver (0) Single Atoms for Selective Borylation of Aryl Iodides, Enxin Cui, Haibin Li, Chen Zhang, Dan Qiao, Manoj B. Gawande, Chen-Ho Tung, and Yifeng Wang Applied Catalysis B: Environmental, 2021, 299, 120674. (IF-19.50)
7. Convenient and Reusable Manganese-Based Nanocatalyst for Amination of Alcohols, Murugan Subaramanian, Palmurukan M. Ramar, Ganesan Sivakumar, Ravishankar G. Kadam, Martin Petr, Radek Zboril, Manoj B. Gawande, and Ekambaram Balaraman\* ChemCatChem, 2021, 13, 4334-4341

(IF: 4.58)

### • Dr Somen Mondal

1. S. Bhunia, N. Ghorai, S. Burai, P. Purkayastha, H. N. Ghosh, S. Mondal\*, Unravelling the Carrier Dynamics and Photocatalytic Pathway in Carbon Dots and Pollutants of Wastewater System, J. Phys. Chem. C, 2021, 25, 27252–27259.
2. A. B. Townley, S. Mondal, Y. Agam, R. Nandi, N. Amdursky, Light-modulated cationic and anionic transport across protein biopolymers, Angew. Chem, 2021, 60, 24676-24685

### • Dr Saurav Raj

#### • Journal Articles Publications:

1. Optimal parameter estimation of 1-phase and 3-phase transmission line for various bundle conductor's using modified whale optimization algorithm, International Journal of Electrical Power & Energy Systems, Elsevier, 2022, 138, 107893. (IF- 4.63)
2. Allocation of phasor measuring unit using an admissible searching-based algorithm A-star and binary search tree for full interconnected power network observability, Optimal Control Applications and Methods, Wiley, 2021, 1– 15. (IF- 2.53)
3. Hybrid BOA-GWO-PSO algorithm for mitigation of congestion by optimal reactive power management, Optimal Control Applications and Methods, Wiley, 2021, 1– 15. (IF- 2.53)
4. A Hybrid GWO-PSO Technique for the Solution of Reactive Power Planning Problem International Journal of Swarm Intelligence Research (IJSIR), 2022, 13, 1-30. (ESCI)
5. Optimal reactive power planning using oppositional grey wolf optimization by considering bus vulnerability analysis,





Energy Conversion and Economics, Wiley, 2021. (ESCI)

6. A Review at the Utilization of Renewable Energy in an Agricultural Operation, Biophysical Economics and Sustainability, Springer, 2021.

### • Dr Hitendra Patil

#### • Journal Articles Publications:

Use of Smartphones for E-Learning during Covid-19. Dr Hitendra J. Patil. International e-Journal of Library Science Vol.: 9 • No.: 2 • July - December 2021

### • Dr Navnath

#### • Journal Articles Publications:

1. Solar energy as a renewable energy source for preparative-scale as well as solvent and catalyst-free Hantzsch reaction, Sustainable Chemistry and Pharmacy, 21, 2021, 100444. (IF 4.508)

2. Concentrated solar radiation-assisted one-pot/multicomponent synthesis of pyranopyrazole derivatives under neat condition Research on Chemical Intermediates, 2021, 47(10), pp. 4245–4255. (IF 2.914)
3. One-pot synthesis of -N-heteroaryl ketone derivatives from aryl ketones using aqueous NaCl<sub>2</sub>, Journal of Heterocyclic Chemistry, 2021. (IF 2.193)

### • Dr Srimanta Maji

#### • Journal Articles Publications:

Srimanta. Maji\* and Akshaya.K.Sahu, Numerical investigation of dual solutions in mixed convection boundary layer flow over a vertical flat plate for nanofluids under quasilinearization technique. SN Applied Sciences, Springer Nature, Volume-3, Issue-11, 1-13, 2021.

## Socio-Cultural Activities

### Awareness Program at Padalli village by ICT MARJ Students of M Tech Food Engineering on 29 September 2021

On the occasion of “National Nutrition Month 2021” M.Tech (Food engineering and Technology) students at ICT Marathwada Campus, Jalna volunteered to make Padalli Village (near Jalna) people aware of the importance of the nutrition programme.

It is very important to make rural citizens aware of such nutrition and health-related aspects. Keeping this in mind MARJ students discussed the importance of nutrition and health concerning the immune system, mental and physical wellbeing

with the villagers. They also interacted with every age group, heard their problems regarding health and nutrition and provided them with the best possible solutions.

M Tech Students such as Srishti Dhane, Krushna Alnure, Akshay Chavan, Zaheer Kazi, Rutvika Bawaskar, Sayali Deshmane, Vaidehi Shukla, Kiran Bhamodre and others have shared their valuable time, knowledge and had a fruitful discussion with all the villagers irrespective of their age and gender. During this program these students have discussed various nutrition related issues, food intake, food habit, diet, etc. They imparted the importance of good and balanced nutrition and made them aware of the consequences of improper nutrition;



nutrition and different nutrients present in daily diet, their sources and their benefits; the nutrition during pregnancy where they are cautioned about the necessary care to be taken as far as the diet is concerned for the pregnant woman; infant



nutrition, the importance of breast milk to the child and valuable benefits to the newborn from breast milk; information pertaining to the alternative foods for breast milk; the nutrition during Covid-19; the importance of nutrition of the geriatric population and different diets based on the different physiological conditions in old age; nutrition during teenage and adulthood; real-life examples regarding teenager's attraction towards fast foods and how it is spoiling their health; and the adults' ignorance towards their nutrition due to workload and how to improve it.

The awareness program concluded with the distribution of healthy nutritious food packets to villagers. The guidance of MARJ Director Prof. Uday Annapure and Dr Yogesh Gat helped the program to be successful.

### **Dussehra Celebration at ICT MARJ on 14 October 2021**

We celebrated Dussehra in traditional and unique way on 14 October 2021. As part of tradition, MARJ students and TARAs decorated all the laboratories, and New Building. In addition to this, they designed a temple for Saraswati Devi and decorated it too with the coconut tree leaves. Not only the students but the support staff too decorated their offices. The



celebration started with the ICT ritual of lighting the lamp for Rasayan Devika Idol.

On this day we also planned to inaugurate and perform pooja of our State-of-the-Art Laboratories. Prof. Annapure, the torchbearer of the campus, inaugurated and performed pooja of Director Office, Instrumentation Lab, Reactor Lab, Physics Lab, and the Library. Whereas deputy director Dr

Parag Nemade and Dr Saurav Raj did the same ritual to the Chemical Engineering Labs; Dr Manoj Gawande and Dr Saurav Raj to the Electrical Lab; two senior faculties Dr Manoj Gawande and Dr Girish Joshi to the ICP-MS Lab and Wet Lab; Dr Yogesh Gat and Dr Saurav Raj were seen doing the rituals to the Food Lab; an Mr Sharad Lahoti and Dr Navnath Hatvate were involved in similar activity for the Biochemistry/Microbiology Lab.

The inauguration of the Laboratories preceded the Mahapooja. Director of the institute performed Mahapooja and gave a short but sweet speech. Support staff followed Director's footsteps and performed pooja to their individual lab machines and instruments. This ritual showed their deep gratitude and sense of great honour, respect and love to the various machines, instruments, etc. they work with throughout year.

The second unique scheduled program was Tree-Plantation. We felt proud while planting the trees in the vicinity of the institute and with this we request everyone to at least plant one tree every year and follow it grow.

The fun-filled hectic but fruitful day came to an end with savouring delicious food at lunch.





## Student Corner

### International Internship

Mr Farhan Shaikh, was selected for Japan Internship Program under the Ministry of Economy, Trade, and Industry (METI) Government of JAPAN. He was among the 10 students selected from India. He undertook an internship with the Japanese Company “Neis Co., Ltd.” for 2 Months.

### Galore to Ms Aishwaryalakshmi

Aiyshwaryalakshmi, a second-year Integrated M Tech student, was one of the top 50 participants selected for the Engineering Students Festival (ESF) at the India International Science Festival (IISF 2021) held at Panaji, Goa. Her project was selected from amongst 1193 applicants all over India for offline presentation, under the theme – Agriculture and Food Processing. Her project titled “Ethnic Food and Ayurveda” highlighted the scientific benefits of a few ethnic foods of India and their medical and nutritional benefits



in compliance with the principles of Ayurveda. It also incorporated the subjects of “Ethnic food and Dietary culture” and “Food as Medicine”. Her endeavour was appreciated by Dr Rajneesh Kumar Dubey, Director, UGC. She also got the opportunity to interact with Dr Arvind C Ranade, Senior Scientific Officer, Vigyan Prasar, and Dr Rajneesh Talwar, Director, Chandigarh Engineering College, Jhanjeri.

She was given the opportunity to perform an Invocatory Mohiniyattam Dance at the inaugural ceremony of ESF on 11 December 2021 at Panaji, Goa.

### Student Publication

- Arun Kute, a TARA research scholar, published a research article on “Single-Atom (Iron-Based) Catalysts: Synthesis and Applications” in Chemical Reviews, American Chemical Society (ACS).
- Sakshi Tak, Debashis Kundu. A-priori Modelling of Density of Deep Eutectic Solvent with Cohesion Based Cubic Equation of State, Chemical Thermodynamics and Thermal Analysis (2022) 5, pp 100026. DOI: 10.1016/j.ctta.2021.100026.
- Vedant Joshi, a fourth Year Integrated M Tech student published his Industrial Internship Experience in Purnabrahma Magazine.

### Conferences Presentation Awards

- Farhan Shaikh, won the Best Oral Presentation Award at the “Sustainable Environment: Challenges and Opportunities, National Institute of Technology-Jalandhar” on the topic “Gas Emissions from Bricks Kiln Industry” under the guidance of Dr Sunny Kumar.



### Air Box Model



International Conference on Chemical, Bio and Environmental Engineering (CHEMBIOEN-2021) on the topic “Air pollution modeling for Jharia region in India”.

- Vishal Gokul Beldar won the Second Rank for the Oral presentation at the New Horizons of Natural Products and AYUSH Remedies; Organized by Gujrat Technological University and Society of Pharmacognosy on the topic “Development of a simple, rapid and economical method for extraction and isolation of 3-O-acetyl-11-keto- $\beta$ -boswellic acid from the resins of *Boswellia serrate*”.

- Rushali Dudure, a scholar, presented at the International Conference on New Horizons of Natural Products and AYUSH Remedies, on the topic “Interaction Studies of Natural Products on Human Serum Albumin: Isothermal Titration Calorimetry and Molecular Docking Approach”.
- Vedant Joshi, a fourth Year Integrated MTech student, presented at the 27th CONIAPS Conference on Sustainable Chemistry for Future Technologies on the topic “Ionic liquid as Non-Aqueous Extractant of Bitumen”.
- Vishal Gokul Beldar, a scholar, presented at the New Horizons of Natural Products and AYUSH Remedies; Organized by Gujrat Technological University and Society of Pharmacognosy on the topic “Development

### Student Participation at Conferences

- Aniket Shitole, a third-year Integrated MTech student, presented at the American Chemical Society spring 2022 on the topic “Carbon capture technology for sugar mills”.
- Anjali Nanwate, a TARA research scholar, presented at the International Conference on Mathematical Sciences (ICMS-2021) on the topic “Non-local Terminal Value Problem in Generalized Fractional Sense”.
- Farhan Shaikh, a fourth Year Integrated MTech student, presented at the “Sustainable Environment: Challenges and Opportunities, National Institute of Technology-Jalandhar” on the topic “Gas Emissions from Bricks Kiln Industry” under the guidance of Dr Sunny Kumar.
- Ravinutala Shivani, a fourth Year Integrated MTech student, presented at the 2nd

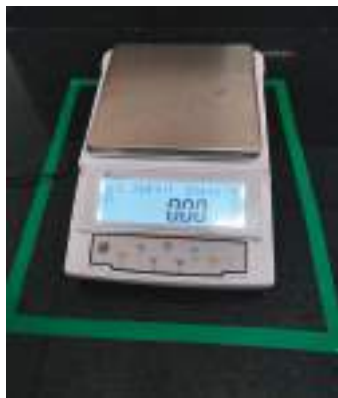


of a simple, rapid and economical method for extraction and isolation of 3-O-acetyl-11-keto- $\beta$ -boswellic acid from the resins of *Boswellia serrate*”.



## Campus Development Activity

### Pharma Laboratory



Pharma Lab has been established for Two Year M Tech and Integrated M Tech with concern to their academic curriculum. This lab will be handy for the Two Year M Tech students of Pharmaceutical Chemistry and

Technology. It will be instrumental for their practical experiments and exams such as Instrumental Methods of analysis lab in the first semester and Pharmaceutical Technology lab in the second semester. As a part of curriculum, this lab is developed and designed in such a way that the students of second year M Tech and PhD can seamlessly conduct experiments required for their research projects and theses. It is equipped with required instruments, glassware, chemicals, APIs and excipients. It consists of dedicated working area, separate cupboards to store the chemical and glassware, lockers for the students, and washing area.

Apart from the instruments available in the institute central facility, this lab is equipped with following instruments:

- 1. Weighing and Analytical balance:** Required to weight the chemicals accurately to perform an experiment for their research.
- 2. Laboratory Precision Oven:** For drying of washed glass apparatus to reuse.
- 3. Microwave Oven** used to accelerate the rate of reactions



- 4. Digital pH meter:** To Evaluate the pH of different semisolid and liquid pharmaceutical formulation
- 5. Conductivity meter:** Water conductivity is used as a measure of purity for Purified Water (PW) and Water for Injection (WFI) in the pharmaceutical parenteral products. Conductivity measurements are a useful indicator of the amount of dissolved ions present in a water sample and can serve as a measure of water quality.
- 6. Muffle Furnace:** For catalyst activation
- 7. Vacuum oven:** For drying of thermolabile or heat sensitive products like proteins, vitamin, etc.
- 8. Laboratory Orbital Shaker:** for culturing



microbes, washing blots, and general mixing.

## Food Laboratory

Food laboratory is recently developed for Research Scholars, Two Year M Tech and



Five Year Integrated M Tech students of Food Engineering. It is useful for their practical experiments. It consists of separate cupboards, lockers and large work area. This lab is equipped with the following instruments:

1. **Tray dryer:** it is a batch process used to dry the material that are liquid or wet.
2. **Spray dryer:** it is a method of producing a dry powder from a liquid or slurry by rapidly drying with a hot gas.
3. **Colorimeter:** Colour measurement system are used to measure a broad range of food products. These include fresh and processed fruits and vegetables,



formulated foods, dairy products, spice and flavor, cereals and grains, oils, syrups, sugar and beverages.

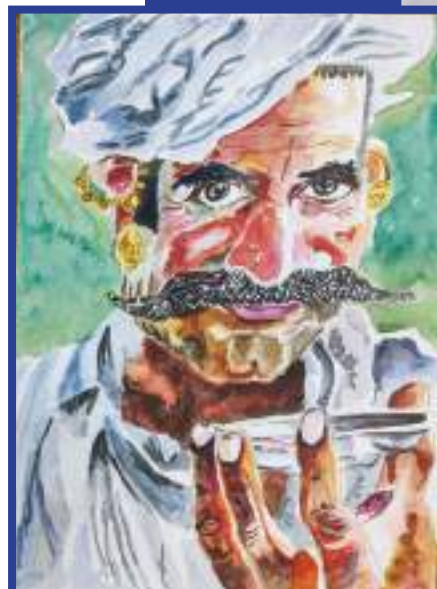
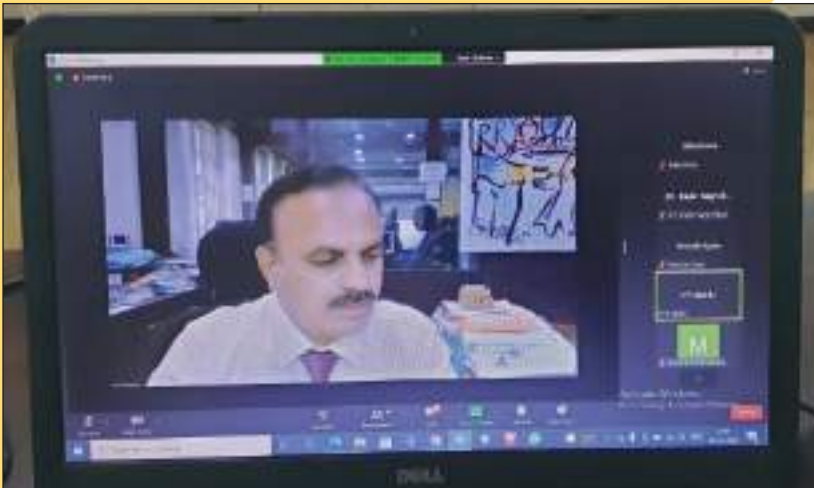
4. Weighing and analytical balance are required to weight the chemicals accurately.
5. Microwave oven are used to bake.
6. Refractometers are used for measuring concentrated of aqueous solution.
7. Muffle furnaces are used for high temperature testing applications such as loss-on-ignition or ashing.



## Instrument Installation

- **Wet-Lab:** As mentioned in previous issue the Wet-Lab is fully functional. Research Scholars, Project Assistants, i-M Tech students, IPT students, and Two Year M Tech students of Chemistry, Chemical Engineering, Polymer Engineering, Ultrafast Dynamics of Nanomaterials and Biomaterials, Electrochemistry can perform their experiments in this Lab. Second Fume Hood has also been recently installed in Wet-Lab.
- **Brunauer–Emmett–Teller (BET):** Very recently, Brunauer–Emmett–Teller (BET) instrument including assembly of BELSORP MAX II and BELCAT II (Make: MicrotracBEL Corp.) was installed successfully. BET surface area analyser is used for the surface area and porosity analysis of solid or porous materials.
- **The BELSORP MAX II:** it is a versatile instrument which measures specific surface area/pore size distribution, vapor adsorption and chemisorption. The BELSORP MAX II analyzer allows comprehensive surface characterization such as micropore analysis by measuring adsorption isotherms from extremely low pressure, or hydrophilicity/hydrophobicity by water vapor adsorption.
- **BELCAT II:** is the catalyst analyzer of choice for researchers in the according fields and enables comprehensive catalyst evaluation by using the following techniques:
  - Pulse chemisorption
  - Temperature programmed desorption (TPD)
  - Temperature programmed reduction (TPR)
  - Temperature programmed oxidation (TPO)
  - Temperature programmed reaction (TPReaction)
  - BET single point measurement
- **Inductively Coupled Plasma Mass Spectrometry (ICP-MS):** We have installed very sophisticated Inductively Coupled Plasma Mass Spectrometry (ICP-MS) instrument (iCAP Qnova series, Make: Thermofisher scientific). ICP-MS is a type of mass spectrometry that uses an inductively coupled plasma to ionize the sample. It atomizes the sample and creates atomic and small polyatomic ions, which are then detected. It is known and used for its ability to detect metals and several non-metals in liquid samples at very low concentrations. It can detect different isotopes of the same element which makes it a versatile tool in isotopic labelling.
- **Tube Furnace:** apart from this, Tube Furnace has also been installed. It is used for the pyrolysis of materials at high temperature under inert conditions. Very soon, we shall install Fixed Bed Reactor, High Pressure Reactors at state of art analysis facility of ICT MARJ.





Water Colour Painting Off to work by Aishwaryalakshmi

