



INSPIRE 2023-24

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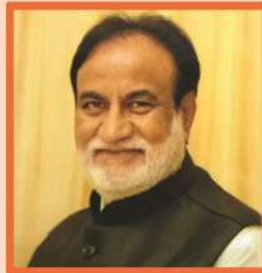


**Institute of Science & Technology for
Advanced Studies & Research (ISTAR)**
A Constituent College of The CVM University

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From The President's Desk



I am glad to know that ISTAR is publishing 5th issue of College Bi-Annual Magazine "INSPIRE" in August, 2023. As a part of "Azadi Ka Amrut Mahotsav", I believe that INSPIRE would be indeed a much delightful and informative newsletter for all the students as well as faculty fraternity to keep them updated with enlightened events of the institute in all the fronts. This is yet another milestone, which embodies curricular, co-curricular and extra-curricular activities, that is endowed with praiseworthy and momentous achievements of the institute. I am sure that the present issue of INSPIRE will inculcate the creative and hidden talents of the students and faculty of ISTAR. I convey my Best Wishes to students and staff of ISTAR towards excellence in this academic year (2023-24). I render my heartfelt thanks to the Principal of ISTAR and the entire Editorial Team of INSPIRE for rejuvenating the Institutional Bi-Annual Magazine for the noble cause of students fraternity and human society.

Provost's Message



I feel very much enlightened to hear that ISTAR is going to launch an institutional bi-annual e-magazine "INSPIRE" in August, 2023. I heartily appreciate such an admirable initiative taken by The Principal, ISTAR. Because of his incessant and enduring efforts, it will help all the students and faculties to stay connected with academic, research, co-curricular as well as extra-curricular activities of ISTAR. I am sure that INSPIRE will be a regular periodical for sharing all the information on six month basis for being updated with institutional activities.

It will also be a highlight for students' community to avail many exciting and distinctive activities and accomplishments. We have much to celebrate, but we also have much work to do, and it is through the spirit of information of sharing that we will get the work done together.

I am extremely gratified that the institution is growing by leaps and bounds, and is well recognized for its high standards of education for the last three decades. My Best Wishes to all of you for embarking upon initiating such an admirable and innovative initiative for the benefits of students as well as society.

Principal's Message



Dear Parents, Students, and well-wishers of ISTAR Family ! My prayerful greetings to all of you ! First and foremost, I would like to express my deep sentiments of gratitude to everyone for your constant support, love and concern towards the college, which enables and encourages us to strive hard to carry forward the mission of spreading value-based knowledge to one and all. We always focus on discovering, developing and drawing out the hidden talents and the magic dormant inside all of our students. From academics to co-curricular activities, perseverance, and a never-say-die spirit are entrenched in the heart of every student not only making them good students, but brilliant human beings. Keeping all these aspects in our minds, we are on the steps of launching our institutional e-Periodical 'INSPIRE', to bring out their hidden knowledge, talents, skills and potentials of our students. We persistently deploy our best and painstaking efforts to shape and express their creative ideas through their writings on a global platform to inculcate their careers towards brighter avenues. I am sure that through INSPIRE, our students will be embedded with the brightening skills, powerful mindsets, and glittering qualities that will best equip them for success. Come on, let's give our best and make this institution a modern temple of learning through our diligence, devotion and dedication. Wishing all the best to Students, Faculties, and Editorial Team of INSPIRE !!

Vision

To add significantly to our enduring civilizational tradition of pioneering excellence in learning, knowledge, enlightenment and self-realization, in a universally relevant context.

Mission

We dedicate ourselves to the perpetuation of our Founders' Vision of providing the infrastructure, facilities, operating conditions and overall environment conducive to the Education of young scholars, along with the desired physical, mental and character building inputs; we firmly renew our commitment to providing value added, globally relevant Education with an emphasis on the Techno Management domain, to ensure that our scholars fruitfully exercise their knowledge, skills and values in the global economy.

Objectives

- To create and nourish a stimulating learning environment that ensures a globally relevant Education based on Eternal human values;
- To forge and reward excellence in the curricular as well as the non-curricular sectors so as to ensure the scholars' global competitiveness;
- To tap, nurture and unleash the innovative entrepreneurial abilities of scholars and thereby ensure lifelong socioeconomic, value addition;
- To evoke and embellish the finest traits of human excellence that go on to dovetail into a sustainable career growth curve;
- To affiliate, associate, liaise or otherwise synergize with any institution, body, entity, ethno cultural diaspora and the overall global fraternity in any form whatsoever, in support of the above;
- To initiate, consolidate and extrapolate any objectives, functions and activities in support of the above.

ISTAR @ PROFILE

Our institute namely Institute of Science and Technology for Advanced Studies and Research (ISTAR) is a brainchild of Dr. C.L. Patel and was established in the year 1999 exclusively for postgraduate study and research in Chemical Sciences, Physical Sciences, Computer Science, Environment Science and Interdisciplinary courses approved by UGC and AICTE.

ISTAR, A Constituent College of The CVM University, pioneered unique interdisciplinary courses like Master of Industrial Hygiene & Safety and Master of Valuation. Facility for Ph.D. study in Industrial Chemistry, Environmental Science, Chemistry, Instrumentation & Control and Computer Science is available at ISTAR.

Institute recognizes importance and essentiality of curricular, co-curricular and extra-curricular activities. Students are encouraged to organize and participate in technical workshops, Seminars & Conferences, cultural and sports activities for demonstrating their skills and mark of worthy citizens. Institute is committed in shaping career of the students as per the aspirations of the world of tomorrow and has taken many initiatives in this regard.

One of the major initiatives taken is Memorandum of Understanding signed by different departments of ISTAR with Institutes, Industries and Universities of global repute for providing opportunity for collaborative research, joint planning of seminars, Training & Placement and exchange of students and faculties. We understand the importance of sponsored research programs and consultancy work and accomplishments of institute have generated recognition and faith among industries, recruiting agencies and aspirant students.

Institute is regularly inviting expert faculties from academia, industries and R & D institutes for achieving academic excellence and this has benefitted in placement of our students. Institute is conscious about the raising and maintaining quality standards of higher education, will certainly widen the horizon in the era of knowledge economy with enlightened management of CVM under patronage of Er. Shri Bhikhubhai Patel, and by the efforts of qualified and committed faculty members of ISTAR.

As a result of efforts of Team ISTAR, ISTAR secured 1st rank with 5 star rating in GSIRF ranking for three consecutive years. ISTAR also got recognized at the National level NIRF ranking among top 200 institutes out of 8000+ institutes for three consecutive years.

SALIENT FEATURES OF ISTAR

- **ISTAR is one of the leading Higher Education Institutes (HEI) of India, managing 13 diverse postgraduate programmes under one umbrella with unique, exceptional and job oriented courses**
- **Accredited with 'A' Grade by NAAC (2014-2019)**
- **M.Sc. Geoinformatics (GIS) is a novel program for entire state started by ISTAR in 2016-17**
- **M.Sc. Surface Coating Technology (SCT), M.Sc. Environmental Science & Technology (EST) and M.Sc. Instrumentation & Control (INC) are the only courses of its kind offered by ISTAR in the state of Gujarat**
- **Sophisticated Instrumentation Centre for Applied Research and Testing (SICART – Established jointly by CVM & DST) and ISTAR are jointly conducting 3 Days On-hand Training on Sophisticated Instrumentation for Students of EST, IC, OC, PC and SCT Departments**
- **Testing and Consultancy in the field of Chemical Sciences has earned good reputation and faith of industries, and Institute is providing Testing and Consultancy services to many industries**
- **Specialized training programs for Industry & Institute sponsored candidates**
- **Add-on Courses, Certificate Courses, PG Diploma Courses and Short Term Training Programmes for curriculum enrichment and improved employability with capacity building**
- **Virtual Classroom for IIRS-ISRO outreach and faculty development programs**
- **State of the Art laboratory facilities, ICT enabled smart classes and enriched library**
- **Wi-Fi enabled campus**
- **Indoor and Outdoor sports facilities**
- **Well-organized Alumni association**
- **Facilities for differently abled individuals**
- **Well-furnished hostels with all the modern amenities for boys and girls**

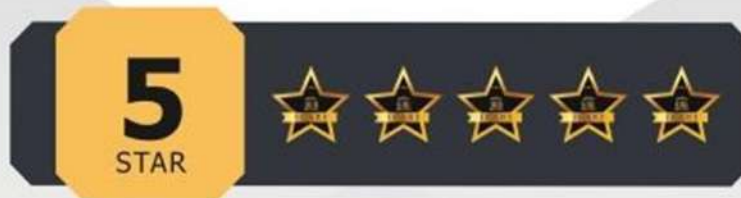
Programs @ ISTAR

- **M.Sc. (Industrial Chemistry)**
- **M.Sc. (Surface Coating Technology)**
- **M.Sc. (Organic Chemistry)**
- **M.Sc. (Polymer Chemistry)**
- **M.Sc. (Environmental Science & Technology)**
- **M.Sc. (Industrial Hygiene & Safety)**
- **M.Sc. (Real Estate Valuation)**
- **M.Sc. (Plant and Machinery Valuation)**
- **M.Sc. (Instrumentation & Control)**
- **M.Sc. (Geoinformatics)**
- **M.Sc. (Information Technology)**
- **M.C.A. (Master of Computer Application)**
- **M.Sc. (Physics)**
- **P.G. Diploma in Geoinformatics**
- **Ph.D.**



The Executive Committee of the **Knowledge Consortium of Gujarat,**
Department of Education, Government of Gujarat on the
 recommendation of the duly appointed agency, the Indian Centre for Academic
 Rankings and Excellence (**ICARE**) has rated

*Institute of Science & Technology for
 Advanced Studies & Research (ISTAR)*



as a **5 Star** Institution in the category of
 'Colleges' on the basis of comprehensive performance metrics as set out in the
Gujarat State Institutional Ratings Framework (GSIRF)
 on the 28th February 2023.



BY ORDER

SJ Haider IAS
 Principal Secretary
 Higher & Technical Education
 Government of Gujarat

M Nagarajan IAS
 Commissioner
 Higher Education
 Government of Gujarat

Prof AU Patel
 Advisor
 Knowledge Consortium of Gujarat
 Government of Gujarat

Dr Karthick Sridhar
 Vice Chairman
 Indian Centre for Academic
 Rankings and Excellence

VALID UPTO 31st May 2023



National Institutional Ranking Framework
Ministry of Education
Government of India



HOME ABOUT NIRF PARAMETERS DOCUMENTS RANKING NOTIFICATION/ADVT FAQs CONTACT

India Rankings 2020: College (Rank-band: 101-150)

Institution list in alphabetical order

Name	City	State
A. V. C. College	Nagapattinam	Tamil Nadu
Anna Adarsh College for Women	Chennai	Tamil Nadu
Auxilium College	Vellore	Tamil Nadu
Bharathi Womens College	Chennai	Tamil Nadu
Bharathidasan Government College for Women	Puducherry	Pondicherry
Catholicate College	Pathanamthitta	Kerala
Christ College	Thrissur	Kerala
CMS College	Kottayam	Kerala
D. A. V. College	Chandigarh	Chandigarh
Dr Ambedkar Government Arts College	Chennai	Tamil Nadu
Dr. S. N. S. Rajalakshmi College of Arts and Science	Coimbatore	Tamil Nadu
Goswami Ganesh Dutta S.D. College	Chandigarh	Chandigarh
Government Arts College	Kumbakonam	Tamil Nadu
Government Arts College	Udumalpet	Tamil Nadu
Government Arts College	Salem	Tamil Nadu
Government College	Rajahmundry	Andhra Pradesh
Government College of Arts, Science and Commerce	Marcela	Goa
Government Institute of Forensic Science	Nagpur	Maharashtra
Government Victoria College	Palakkad	Kerala
Holy Cross College	Kanyakumari	Tamil Nadu
Institute of Science & Technology for Advanced Studies & Research (ISTAR) College	Vallabh Vidyanagar	Gujarat
Justice Basher Ahmed Sayeed College for Women	Chennai	Tamil Nadu
Kalindi College	Delhi	Delhi
Lakshmi Bai College	Delhi	Delhi
Maharaja's College	Ernakulam	Kerala
Mar Athanasius College	Kothamangalam	Kerala
Marian College	Kuttikanam	Kerala
MS Ramaiah College of Arts Science & Commerce	Bengaluru	Karnataka
N. G. M. College	Coimbatore	Tamil Nadu
National College	Tiruchirappalli	Tamil Nadu
Nirmala College for Women	Coimbatore	Tamil Nadu
Nirmalagiri College	Kannur	Kerala
Pachhunga University College	Aizawl	Mizoram
Rathinam College of Arts and Science	Coimbatore	Tamil Nadu
Sarah Tucker College	Tirunelveli	Tamil Nadu
Scottish Church College	Kolkata	West Bengal
Seethalakshmi Ramaswami College	Tiruchirappalli	Tamil Nadu
Shrimathi Devkunvar Nanalai Bhatt Vaishnav College For Women	Chennai	Tamil Nadu
Silver Jubilee Degree College	Kurnool	Andhra Pradesh

Accreditation Details

- ISTAR with 4.49 CGPA and 5 Star Ratings, secured 1st Position in College Category in GSIRF (Gujarat State Rating Framework) by KCG (Knowledge Consortium of Gujarat) for the Year 2022-23.
- ISTAR is listed in 151-200 Colleges of India in NIRF (National Institutional Ranking Framework) by MHRD (Ministry of Human Resource Development, New Delhi, for the Year 2022-23).

Research, Consultancy & Extension

Ongoing Research Projects

- A project titled as “An Assessment of Impacts of Climate Change on Ambient Air Quality, Vulnerability and Human Health of Urban Cities of Gujarat, India to Suggest Site-Specific Strategies for Mitigation Measures”, sanctioned by Climate Change Department (CCD) & Gujarat Energy Development Agency (GEDA), Gandhinagar, with outlay of Rs. 5.0 Lakh is being worked upon by Dr. Hiren B. Soni and Dr. Dhruvi S. Patel as the Co-Principal Investigators of Department of Environmental Science & Technology (EST). (1.4.2020 to 31.3.2023)
- A project titled as “Dissimilar self-assembly of Fluoro and hydro-carbon based di-block copolymers in solution” sanctioned by UGC-DAE, CSR, with outlay of Rs. 1.35 lakh is being worked upon by Dr. Rohit L. Vekariya as the Principal Investigator of Organic Chemistry Department, ISTAR and Dr. Mehul Khimani as the Co-Principal Investigators of PTH Consultancy Services, Surat.

Research Projects Completed

- A project titled as “Disaster Management Support using Space Technology & Applications To Retain Earth -A Study of Gujarat State (DMS - STARE - SGS) “sanctioned by IIRS-ISRO, with outlay of Rs. 2,47,000 has been completed on June 5th 2023 by Dr. Krunal Suthar as the Principal Investigator and Dr. Hiren Soni as the Co-Principal Investigators of department of Environment Science.

Research Papers Published in Referred Journal

- Chaudhari, H.J. and H.B. Soni of department of Environmental Science & Technology (EST) published a research paper on “Probable First Record of Indian Roofed Turtle (*Pangshura tecta*, Gray 1831) from Freshwater Inland Wetland, Gujarat, India” in India Wild Newsletter Journal (2022), ISSN: 2394-6946 (National)
- Chaudhari, H.J. and H.B. Soni of department of Environmental Science & Technology (EST) published a research paper on “Review on Interplay between Hydro-Geo-Chemistry, Plankton Dynamics and Avifaunal Assemblage of Two Significant Freshwater Wetlands of National Importance, Gujarat, India” in International Journal of Life Sciences Leaflets (2022), (International)
- Chaudhari, H.J., H.B. Soni, J.I., Nirmal Kumar and Rita N. Kumar of department of Environmental Science & Technology (EST) published a research paper on “Multivariate Statistical Analysis of Geochemical Characters of Pariyej Community Reservoir (PCR), Gujarat, India: A Multidimensional Software Approach” in Mendeley Data Journal (2022), <https://data.mendeley.com/datasets/5ngywzrjg2/1> (International) (SCOPUS)

- Chaudhari, H.J., H.B. Soni, J.I., Nirmal Kumar and Rita N. Kumar of department of Environmental Science & Technology (EST) published a research paper on “Hydrochemical Profile of Pariyej Community Reservoir (PCR), Gujarat, India: A Multivariate Statistical Approach using Multidimensional Scaling” in Mendeley Data Journal (2022), <https://data.mendeley.com/datasets/ghz3t6g5kw/1> (International) (SCOPUS)
- Jeimin R. Joshi, Khodidas K. Bhanderi and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Waste cooking oil as a promising source for bio lubricants- A review” in Journal of the Indian Chemical Society, Volume 100 (Jan 2023), pp. 100820, (National) (SCOPUS, WEB of Science, UGC CARE, Peer Reviewed)
- Jeimin R. Joshi, Khodidas K. Bhanderi, and Jigar V. Patel of department of Industrial Chemistry published a research paper on “A review on bio-lubricants from non-edible oils-recent advances, chemical modifications and applications” in Journal of the Indian Chemical Society, Volume 100 (Jan 2023), pp. 100849, (National) (SCOPUS, WEB of Science, UGC CARE, Peer Reviewed)
- Jeimin R. Joshi, Khodidas K. Bhanderi, Mandar Karve and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Chemical modification of waste cooking oil for the biolubricant production through transesterification process” in Journal of the Indian Chemical Society, Volume 100 (Jan 2023), pp. 100909, (National) (SCOPUS, WEB of Science, UGC CARE, Peer Reviewed)
- Khodidas K. Bhanderi, Jeimin R. Joshi and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Recycling of polyethylene terephthalate (PET Or PETE) plastics – An alternative to obtain value added products: A review” in Journal of the Indian Chemical Society, Volume 100 (Jan 2023), pp. 100843, (National) (SCOPUS, WEB of Science, UGC CARE, Peer Reviewed)
- Khodidas K. Bhanderi, Jeimin R. Joshi and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Optimization process for glycolysis of poly (ethylene terephthalate) using bio-degradable & recyclable heterogeneous catalyst” in Journal of the Indian Chemical Society, Volume 100 (Feb 2023), pp. 100904, (National) (SCOPUS, WEB of Science, UGC CARE, Peer Reviewed)
- Krunal Suthar of department of Geoinformatics published a research paper on “Multilayer Authentication System To Access Vehicle Using Fingerprint And Face Identification With Raspberry Pi” in Towards Excellence: An Indexed, Refereed & Peer Reviewed Journal of Higher Education, Volume 14 issue No. 2(June 2022), pp. 119-131, ISSN:0974-035X. (National) (Peer Reviewed)
- Rupesh T. Shah of department of Valuation published a research paper on “Variation amongst actual sale price, document amount and stamp duty ready reckoner value – A case study at Gujarat” in National Journal of Indian Valuer, Volume 54 (June 2022), pp. 63, ISSN: 2583-3553. (National) (Peer Reviewed)
- Rupesh T. Shah of department of Valuation published a research paper on “Capacity Building for Valuation Profession” in National Journal of Indian Valuer, Volume 55 (December 2022), pp. 99, ISSN: 2583-3553. (National) (Peer Reviewed)
- Sanjay H. Panjabi, Nidhi N. Patel, Vaibhav K. Patel, Deep Sharma, of (Department of Chemical Sciences, P. D. Patel Institute of Applied Sciences, CHARUSAT University, Changa, Gujarat, India), Niraj H. Patel, of (Organic Chemistry Department Institute of Science & Technology for Advanced Studies & Research (ISTAR), The CVM University, Vallabh Vidyanagar, Gujarat, India), Saurabh S. Soni of (Department of Chemistry, Sardar Patel University, Anand, Gujarat, India), Kiran Patel (Director, Grow Leaf Biotech Private Limited, Anand, Gujarat, India) published a research paper on " Synthesis, Self-Aggregation, Surface Characteristics, Electrochemical Property, Micelle Size, and Antimicrobial Activity of a Halogen-Free Picoline-Based Surface-Active Ionic Liquid” in ACS Omega, Volume 7 (August-2022), pp. 28974-28984, ISSN: 2470-1343. (International) (SCOPUS/ WEB of Science / UGC CARE / Peer Reviewed).

- Meera Popaliya and Arvnabh Mishra of department of Industrial Chemistry published a research paper on “Modified zeolite as an adsorbent for dyes, drugs, and heavy metal removal: a review” in International Journal of Environmental Science and Technology, Volume 99 (Oct 2022), (International) (SCOPUS, UGC care List, Peer Reviewed)
- Shital R. Patel, Bhavinkumar V. Patel of (Chemical Sciences Department, Natubhai V. Patel College of Pure and Applied Sciences (NVPAS) The CVM University, V. V. Nagar, Gujarat, India), Niraj H. Patel, Isha R. Patel of (Organic Chemistry Department Institute of Science & Technology for Advanced Studies & Research (ISTAR), The CVM University, Vallabh Vidyanagar, Gujarat, India), published a research paper on "Microwave-assisted fabrication for synthesis of magnetite chitosan-modified polymer composite hydrogel as rapid removal adsorbent for effective remediation of hazardous contaminants" in Polymer Bulletin, (Feb-2023) ISSN: 0170-0839 (print); 1436-2449 (web). (International) (SCOPUS/ WEB of Science / UGC CARE / Peer Reviewed).
- Soni, H.B. of department of Environmental Science & Technology (EST) published a research paper on “Water Scarcity in India: A Prioritized Perception” in V-Vidyanagar Journal (2022), (State)
- Suchita Patel of department of Computer Science published a research paper on “A Review: Fraud Prospects in Cryptocurrency Investment” in International Journal of Innovative Science and Modern Engineering (IJISME), Volume 11 (June 2023), pp. 01-04, ISSN: 2319-6386. (International) (Web of Science/Peer Reviewed)
- Vidhi Patel and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Highly efficient novel nanostructured dendritic macromolecules for remediation of aquatic heavy metal ions” in Inorganic chemistry communication, Volume 148 (Jan 2023), pp. 110381, (International) (SCOPUS, Peer Reviewed)
- Vidhi Patel and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Lead and copper metal ion uptake by a novel nanoscalehydroxy-terminated dendritic macromolecules” in Journal of the Indian Chemical Society, Volume 99 (Sept 2022), pp. 100717, (National) (Web of Science, SCOPUS, UGC care List, Peer Reviewed)
- Vidhi Patel and Jigar V. Patel of department of Industrial Chemistry published a research paper on “Dendrimer as a versatile platform for biomedical application: A review” in Journal of the Indian Chemical Society, Volume 99 (May 2022), pp. 100516, (National) (Web of Science, SCOPUS, UGC care List, Peer Reviewed)
- Yongfang Yao department of (Henan Provincial Key Laboratory of Children’s Genetics and Metabolic Diseases, Children’s Hospital Affiliated to Zhengzhou University, Zhengzhou University, Zhengzhou, 450018, China) , Akshay Vyas, Rohit R. Koshti, Chetan B. Sangani, H.N. Patel department of (Shri Maneklal M. Patel Institute of Sciences & Research, Kadi Sarvavishwa Vidyalaya, Gandhinagar, Gujarat, India), Yong-Tao Duan department of (Henan Provincial Key Laboratory of Children’s Genetics and Metabolic Diseases, Children’s Hospital Affiliated to Zhengzhou University, Zhengzhou University, Zhengzhou, 450018, China), Pranav S. Shrivastav department of (Department of Chemistry, School of Sciences, Gujarat University, Ahmedabad 380009, India), A.K. Prajapati department of (Chemistry Department, Faculty of Science, The M.S. University of Baroda, Vadodara, India), Rohit L. Vekariya, of (Organic Chemistry Department, Institute of Science & Technology for Advanced Studies & Research (ISTAR), CVM University, Vallabh Vidyanagar, 388 120 Gujarat, India), published a research paper on "Mesophasebehaviour of new unconventional shaped azodiester having chloro/nitro derivatives with 1, 2, 4-trisubstituted benzene” in Journal of Molecular Liquids , Volume 363 (July-2022), pp. 119893, ISSN: 18733166, 01677322. (International) (SCOPUS/ WEB of Science / UGC CARE / Peer Reviewed).

Oral / Poster Presentation at State / National / International Conference

- A.J. Mahaliya, D.A. Ka. Patel and H.N. Kapse, of department of Instrumentation and Control presented poster on “Monitoring Sensitivity of MQ Series Sensor by Interfacing Arduino as a Base study for Methane Sensor” at National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022) organized by IITE, Gandhinagar on August 27, 2022.
- D.A. Ka. Patel and H.N. Kapse, of department of Instrumentation and Control presented poster on “Modified Screen-Printed Electrode for determination of Copper (II), Through IoT” at 2nd One day National Conference on Advances in Materials Science: Challenges and Opportunities (AMSCO-2023) organized by M. K. Bhavnagar University, Bhavnagar on March 6, 2023.
- D.A. Ka. Patel, A.J. Mahaliya, and H.N. Kapse, of department of Instrumentation and Control presented oral presentation on “Remote Monitoring System for Agricultural Application” at National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022) organized by IITE, Gandhinagar on August 27, 2022 .
- Jeimin R. Joshi and Jigar V. Patel of department of Industrial Chemistry presented oral presentation / poster on “CHEMICAL MODIFICATION OF WASTE COOKING OIL FOR THE BIO-LUBRICANT PRODUCTION THROUGH TRANSESTERIFICATION PROCESS.” at Recent advances in chemical science organized by Chemistry Department and IQAC, M.N. College, Visnagar, Gujarat during/ on 22nd - 23rd Nov 2022.
- Kaushal J. Bavaliya, Nilesh S. Vala, and Mahendrasinh M. Raj of department of polymer chemistry presented a poster presentation on “Studies on poly (lactic acid) based polymeric blends” at one day national conference on emerging trends and innovative research in chemical science organized by university of Shree Govind Guru, Godhra on 11th January 2023.
- Khodidas K. Bhanderi of department of Industrial Chemistry presented oral presentation / poster on “Optimization process for glycolysis of PET using biodegradable and recyclable heterogeneous catalyst.” at Recent advances in chemical science organized by Chemistry Department and IQAC, M.N. College, Visnagar, Gujarat during/ on 22nd Nov 2022- 23rd Nov 2022.
- Kinnari A Bhatt of Organic Chemistry Department, Institute of Science & Technology for Advanced Studies & Research (ISTAR), CVM University presented poster on “Preparation, Characterization and Thermal Stability Comparison of Na-PCMTKP-g-PMMA” at National Conference on Chemistry & Environment (NCCE-2023) organized by Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar, Gujarat during 17th & 18th March-2023.
- Krunal Suthar of department of Geoinformatics Department presented poster on “Earth true recession water scarcity” at Seize the beauty of our Planet' 2022 organized by Cloud Ferro Poland on Nov 13, 2022.
- Meera Popaliya and Arvnabh Mishra of department of Industrial Chemistry presented oral presentation / poster on “Removal of Methylene Blue Dye from aqueous solution by Java Plum leaves ash.” at Recent Advances In Chemical Science organized by Chemistry Department and IQAC, M.N. College, Visnagar, Gujarat during/ on 22nd Nov 2022- 23rd Nov 2022.
- Meet Patel and Mahendrasinh M. Raj of department of Polymer Chemistry presented a poster presentation on “Synthesis and characterization of modified phenolic resin and its application in composites” at one day national conference on emerging trends and innovative research in chemical science organized by University of Shree Govind Guru, Godhra on 11th January 2023.
- Mitali Yadav and Mahendrasinh M. Raj of department of Polymer Chemistry presented a poster presentation on “Studies of composites based on modified multifunctional resin system” at one day

national conference on emerging trends and innovative research in chemical science organized by University of Shree Govind Guru, Godhra on 11th January 2023.

- Nilesh S. Vala, Kaushal J. Bavaliya and Mahendrasinh M. Raj of department of Polymer Chemistry presented a poster presentation on “Studies on poly (lactic acid) based polymeric blends” at one day national conference on emerging trends and innovative research in chemical science organized by University of Shree Govind Guru, Godhra on 11th January 2023.
- Niraj H Patel of Organic Chemistry Department, Institute of Science & Technology for Advanced Studies & Research (ISTAR), CVM University presented poster on “Synthesis and Antimicrobial Activity of Pyrido[3,2-c] Coumarin Derivatives” at National Conference on Chemistry & Environment (NCCE-2023) organized by Department of Chemistry, Sardar Patel University, V.V. Nagar, Gujarat during 17th & 18th March-2023.
- Patel Afif A. and H.N. Kapse, of department of Instrumentation and Control presented poster on “Application of Transmission Electron Microscope in the Field of Life Sciences and its Impact on Our Lives” at National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022) organized by IITE, Gandhinagar on August 27, 2022 .
- Prince Patel and Mandar Karve of department of Industrial Chemistry presented oral presentation / poster on “Utilization of renewable resources and its value added applications: A review.” at Recent advances in chemical science organized by Chemistry Department and IQAC, M.N. College, Visnagar, Gujarat during/ on 22nd Nov 2022- 23rd Nov 2022.
- Rohit L. Vekariya and Jaykumar J. Gami of Organic Chemistry Department, Institute of Science & Technology for Advanced Studies & Research (ISTAR), CVM University presented poster on “Solubilization of polycyclic aromatic hydrocarbons (PAHs) in PEO-PPO-PEO type linear and star block copolymers” at National Conference on Medicinal Chemistry & Drug Design organized by Sir P.T. Science College, Modasa, Gujarat on 28-April-2023.
- Rudresh M. Trivedi and Mahendrasinh M. Raj of department of Polymer Chemistry presented a poster presentation on “Development of modified cardanol based epoxy resin and its composites based on natural and synthetic reinforcing materials ” at national conference on emerging trends and innovative research in chemical science organized by University of Shree Govind Guru, Godhra on 11th January 2023.
- Rushik N. Patel and Amit Thummar of department of Polymer Chemistry presented a poster presentation on “Studies on polymeric blends based on some natural and synthetic thermoplastic polymers” at one day national conference on emerging trends and innovative research in chemical science organized by University of Shree Govind Guru, Godhra on 11th January 2023.

Articles / Chapters Published in Books

- D.A. Ka. Patel, A.J. Mahaliya, and H.N. Kapse of department of Instrumentation and Control published a chapter on “Remote monitoring system for agricultural application ” in Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022), Proceeding Book, pp 176 – 187, ISBN 978-81-957420-2-8, Published by Indian Institute of Teacher Education (IITE), Gandhinagar in Year 2023. (National).
- D.A. Ka. Patel, A.J. Mahaliya, and H.N. Kapse of department of Instrumentation and Control published a chapter on “Comparison between Soil Moisture Sensing and Measurement System” in Proceedings of International Science Symposium on Recent Trends in Science and Technology, Proceeding Book, pp 58-63, ISBN 978-81-929521-8-5, Published by Christ College, Rajkot in Year 2022 (International).
- H.N. Kapse of department of Instrumentation and Control published a chapter on “Pollution in our Community: Measurement and Physical insights” in An Ensemble of Surround Physics (A collection of

awarded Essays in NCEWP 2019 to 2021), E-book, pp 58-63, Published by Indian Association of Physics Teachers, Kanpur in Year 2022 (National).

- Jeimin R. Joshi, Khodidas K. Bhandari and Jigar V. Patel of department of Industrial Chemistry published a Chapter “Eco-friendly polymer nanocomposites based on bio-based fillers: preparation, characterizations and potential applications” in Biodegradable and Biocompatible Polymer Nanocomposites Processing, Characterization, and Applications, chapter 6 pp 173-203 ISBN 9780323985598 Published by Elsevier in Year 2023. (International)
- Meera Popaliya and Arvnabh Mishra of department of Industrial Chemistry published a Chapter “Biodegradable polymer nanocomposites as electrode materials for electrochemical double-layer capacitors and hybrid supercapacitor applications” in Biodegradable and Biocompatible Polymer Nanocomposites Processing, Characterization, and Applications, chapter 6 pp 173-203 ISBN 9780323985598 Published by Elsevier in Year 2023. (International)
- Meera Popaliya and Arvnabh Mishra of department of Industrial Chemistry published a Chapter “Recent Advances in Semiconducting Nanowires-Based Hybrid Structures for Solar Cell Application” in 1D Semiconducting Hybrid Nanostructures: Synthesis and Applications in Gas Sensing and Optoelectronics, chapter 6 pp 173-203 ISBN 9780323985598 Published by Elsevier in Year 2023. (International)
- Meera Popaliya and Arvnabh Mishra of department of Industrial Chemistry published a Chapter “Green Synthesis of MgO Nanoparticles for Adsorption of Anionic Dye from Aqueous Solution” in Proceeding of International Conference RAICE 2023: Vol. II Chemical Engineering, Applied Chemistry, Textile Chemistry, chapter 6 pp 173-203 ISBN 9780323985598 Published by Elsevier in Year 2023. (International)

Expert / Invited Talk

(Delivered by the Faculty of Constituent College)

- Dr. Ashish Joshi of department of Computer Science delivered an invited talk on “Statistical Analysis using R Software” as resource person in the Two Week Certificate Course organized by the Anand Agricultural University, Anand at Anand Agricultural University, Anand on November 11, 2022 and November 14, 2022
- Dr. Ashish Joshi of department of Computer Science delivered an invited talk on “E-Content Development using Multimedia” as resource person in the Two Week Certificate Course organized by the Anand Agricultural University, Anand at Anand Agricultural University, Anand on January 02-03-07, 2023.
- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Introduction of GIS & Its Application for Water Resource Management” as resource Person in GIS and its Application for Water Resource Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 2nd, 2023.
- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Introduction of GIS & Its Application for Water Resource Management” as resource Person in GIS and its Application for Water Resource Development & Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 9th, 2023.
- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Data Acquisition from ISRO-BHUVAN Portal for Irrigation & Water Supply” as resource Person in GIS and its Application for Water Resource Development & Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 9th, 2023.

- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Digital Elevation Model (DEM) & Contour Generation from Satellite Image” as resource Person in GIS and its Application for Water Resource Development & Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 10th, 2023.
- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Introduction of GIS in Engineering Practice” as Expert in Technical & Administrative Training (Module -IV) For Newly Recruited AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on March 13th 2023.
- Dr. Krunal Suthar of department of Geoinformatics delivered an invited talk on “Introduction of GIS in Engineering Practice” as Expert in Technical & Administrative Training (Module -IV) For Newly Recruited AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on May 8th, 2023.
- Ms. Akangsha Verma of department of Geoinformatics delivered an invited talk on “Spatial & Non-Spatial Analysis of Existing GIS Data for Irrigation” as resource Person in GIS and its Application for Water Resource Development & Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 9th, 2023.
- Ms. Akangsha Verma of department of Geoinformatics delivered an invited talk on “Georeferencing and Digitization of Irrigation Map” as resource Person in GIS and its Application for Water Resource Development & Management for EE/AE/AE organized by Water and Land Management Institute (WALMI), Gov. of Gujarat at Anand on February 9th, 2023.
- Rupesh T. Shah of department of Valuation delivered an invited talk on “Valuation of Civil Engineering Projects” as resource person in the Workshop on Valuation organized by Civil Dept. at BVM Engineering College on April 11, 2023.
- Rupesh T. Shah of department of Valuation delivered an invited talk on “International Valuation Standards (IVS)” as resource person in the Continuous Education Program (CEP) organized by PVAI&PVAIVPO (Practicing Valuers Association of India) at Mumbai on December 10, 2022.
- Rupesh T. Shah of department of Valuation delivered an invited talk on “Laws Related to Valuation of Real Estate” as resource person in the Training Program For officers of HUDCO organized by HUDCO- online on September 8, 2022.

Students' Awards and Recognitions (Co-Curricular Achievements)

- Chirag Prajapati, Drashti Bhadja, Keval Patel, Sachin Chitranjan, Maitry Bhatt, Virendra Ahir, and Mayur Patil, department of Geoinformatics participated in “Three Day Workshop on Laser & 3D Printing” organized by ADIT on 21st to 23rd July 2022 at New Vallabh Vidyanagar.
- Kwinal Sudani, Mansi Patel, Dhvani Soni, Utsav Patel, Jiten Tilwani, Himani Parmar, Chirag Prajapati, Drashti Bhadja, Keval Patel, Sachin Chitranjan, Maitry Bhatt, Virendra Ahir, and Mayur Patil, department of Geoinformatics participated in “Two days National Seminar on Modelling Techniques for Agricultural Applications” organized by ADIT on 5th and 6th July 2022 at New Vallabh Vidyanagar.
- Ms. Kwinal Sudani and Ms. Mansi Patel of department of Geoinformatics secured First Prize at Nasa Space App Challenge 2022 on 2nd October 2022.
- Shubham Gupta and Vikash Sharma department of Instrumentation and Control participated in State level “Science Manthan-2023” organized by P.D. Patel Institute of Applied Sciences and secured Second prize on 25th February 2023 at Charusat, Changa.

Student's Achievements in Extra-Curricular Activities

- Fardinkhan Ghori was selected in CVMU team for West Zone Cricket Tournament held at Sikar, Rajasthan

Extension Services (NSS / NCC / Social Activities)

- Institute of Science & Technology for Advanced Studies and Research (ISTAR) College organized a “Thalassemia Check Up Camp” in collaboration with Laksh Fine Chem, GIDC, VU Nagar for the health awareness and health checkup of the students of ISTAR, Vallabh Vidyangar on 23rd September, 2022; Participation by Students (98), Total Patients (98)
- Institute of Science & Technology for Advanced Studies and Research (ISTAR) College organized a “Blood Donation Camp” in collaboration with Laksh Fine Chem, GIDC, VU Nagar on 23rd September, 2022; Participation by Students (70), Teacher (9), Total Blood Unit Collection (79)

Events Organized (Seminar, Conferences, Symposiums, Workshops, FDPs)

- IQAC of ISTAR in collaboration with IfAS, Pune organized Webinar titled “Career after PG” on 4th February 2023 (Students - 100).
- SSIP of ISTAR in collaboration with NVPAS and SSIP Cell CVMU organized Boot Camp titled “Design Thinking, Innovation and Startup” on 9th February 2023 (Students - 157).
- Department of Computer Science, ISTAR in collaboration with Arena Animation Anand organized a Seminar titled “Gaming Fest 2022: How Gaming can also be the future” on 12th July, 2022 (Participation- Students- 10)
- Department of Computer Science, ISTAR in collaboration with ITC Mogri organized a Seminar titled “Gaming Fest 2022: A Seminar on AWS (Amazon Web Services)” on 27th December, 2022 (Participation- Students- 30)
- Department of Geoinformatics as Local center with support of NASA organized Hackathon titled NASA Spaceapp Challenge 2023 during 1st October to 2nd October 2022 (Number of participations = 52)
- Department of Geoinformatics as nodal center with support of Indian Institute of Remote Sensing (IIRS)- ISRO organized outreach Program titled Basic of Remote Sensing, Geographical information system and Global Navigation Satellite System during 22nd August to 25th November 2022 (Number of participations = 30)
- Department of Geoinformatics as nodal center with support of Indian Institute of Remote Sensing (IIRS)- ISRO organized outreach Program titled Advances in Remote Sensing Techniques for Geological Applications during 13th March to 24th April 2023 (Number of participations = 05)
- Department of Geoinformatics as nodal center with support of Indian Institute of Remote Sensing (IIRS)- ISRO organized outreach Program titled SAR Data Processing & its Application with Special Emphasis on RISAT-1A/EOS-4 during 10th April to 24th April 2023 (Number of participations = 06)
- Department of Geoinformatics with support of Indian Society of Geomatics (ISG) organized expert talk titled Mobile GIS & Technology on 7th January 2023 (Number of participations = 92)

- Department of Geoinformatics with support of Indian Society of Geomatics (ISG) organized expert talk titled Machine Learning & Remote Sensing on 7th January 2023 (Number of participations =92)
- Department of Geoinformatics with support of Indian Society of Geomatics (ISG) organized expert talk titled Introduction of Lidar Technology on 18th March 2023 (Number of participations =310)
- Department of Geoinformatics with support of Indian Society of Geomatics (ISG) organized expert talk titled ISRO Mission Chandrayan: Its Payload & Application on 18th March 2023 (Number of participations =310)
- Department of Geoinformatics with support of ISTAR-CVMU organized expert talk titled Demonstration of OBD& Vehicle Tracking System on 30th September 2022 (Number of participations =21)

Activities carried out under MOU

- Students of BAOU were offered a certificate course on English Speaking
- Students of CVMU were offered a certificate course on Yoga

Industrial Visits

- 10 Students of Instrumentation and Control & Physics course, batch 2022-23 visited Adi Artech Transducers, Vadodara and AJ Technologies, Vadodara on February 20, 2022.
- 10 Students of Geoinformatics course, batch 2022-2023 visited Water and Land Management Institute (Walmi), Anand during 6th to 8th February, 2023.
- 15 Students of MIHS course, batch 2021-23 visited ADIT Workshop on 30/08/2023
- 18 Students of Geoinformatics course, batch 2022-2023 visited ISRO, Ahmedabad on November 22nd, 2022.
- 25 Students of M.Sc. (Polymer Chemistry) course, batch 2021-2023 visited M/s. Crest Composites and Plastics Sketra, Kheda on September 06, 2022
- 32 Students of Department of Environmental Science & Technology (EST) course, batch 2021-22 & 2022-23 visited Jambughoda Wildlife Sanctuary during August 5, 2022.
- 35 Students of M.Sc. 1nd and 3rd Semester Surface Coating Technology course, batch 2022-23 & 2023-24 visited Purnima Enterprise, Plot No:1, Nilkanth Estate, Ahmedabad Mehsana Highway, At: Dhanot, Ta: Kalol, Gandhinagar-382729 on 6th September 2022.
- 40 Students of Department of Environmental Science & Technology (EST) course, batch 2021-22 & 2022-23 visited Nal Sarovar Bird Sanctuary during December 26, 2022.
- 7 Students of Instrumentation and Control & Physics course, batch 2022-23 visited Microflat Datums, Vitthal Udyog Nagar on February 20 2023.

Department of Industrial Chemistry

Event Name	Alumni Speak
Event Date	2022-23
Description	Sajjad Ansari (Batch 2016-18), Executive -DQA (Development Quality Assurance) Injectable R&D, Alembic Pharmaceutical Limited, Vadodara- 390003



Sajjad Ansari (Batch 2016-18)

Executive -DQA (Development Quality Assurance) Injectable R&D

Alembic Pharmaceutical Limited,

Vadodara- 390003

It was my immense luck and fortune to be the part of IC Department, ISTAR where I got lots of opportunities. The professors here make the Department what it is today. With an attitude of being ever ready to help, and not only delivering classroom teachings, but they are also the pillars of the IC Department. The entire faculty and department leave no stone unturned to shape one's future.

My two years at IC Department have been a wonderful experience of learning with prolific exposure to outside. A Huge respect, love and devotion for entire faculty members for giving their efforts to make me count myself into better professionals. I am thankful to the Training & Placement cell for providing a platform to enhance my skills and an opportunity to showcase them. One thing I like about the department is that each and every student was the same for the professor all students got the equal opportunities and it was like Learn with Joy. These Two paragraphs are not enough to explain the experience of college life but those were the most beautiful and memorable days.

Message/Thought

Education is not a safety net. It is the rocket which will propel you towards success. All you have to do is have an aim and work on everything that takes to get a lift-off.

Co-Curricular Activities

TITLE	Counseling of STD-12th Student
Event Name	RPTP School's Student visit AT Industrial Chemistry Department
Date	17th January 2023
Organized By	Industrial Chemistry Department
Participants	100 Student



TITLE	24th Annual day Celebration
Event Name	Annual Day, Annual Prize Distribution and Cultural Event
Date	27th March 2023
Guest	Er. Bhikhubhai B. Patel (President, The CVM University) Dr. D.K.Raval (HOD,Dept. of Chemistr, Sardar Patel University.)
Organized By	ISTAR
Participants	Student of Semester 2 & 4



Curricular Activities

TITLE	Open House
Event Name	Parents-Teacher Meeting of 1st Year Student
Date	4th April 2023
Organized By	Industrial Chemistry Department
Participants	66 Student's Parents



TITLE	Farewell Function For Batch 2021-23
Event Name	Farewell Function of Final Year Student at Raj Party Plot
Date	3th February 2023
Guest	Mr. Digant Chhaya, Senior Executive HR (LUPIN LTD.) Mr. Mohil Surati, General Manager HR (LUPIN LTD.) Dr.Kirit H. Patel (DIRECTOR-ISTAR)
Organized By	Sem-2 Student of Industrial Chemistry Department
Participants	190 Student



TITLE	Science Manthan-2023
Event Name	National Seminar
Date	25th February 2023
Organized By	CHARUSAT University And GSBTM
Winner	Azba Vadgama And Ayushi Patel won 3rd Prize in Scientific Poster Presentation
Participants	Student of Sem-4



Extra-Curricular Activities

TITLE	ISTAR Cricket Tournament
Event Name	ISTAR College Inter-Class Cricket Tournament
Date	31st January to 2nd February 2023
Organized By	ISTAR college
Winner	Industrial Chemistry 1st Year Student
Participants	15 Student (Sem-02)



Industrial Visits

TITLE	Industrial Visit
Event Name	Visit to Green Enviro Ltd. CETP & Centre of Excellence (Vapi, Gujarat) Also visit at Madhu ban Dam, Silavasa, Willson Hill
Date	17th March 2023
Organized By	Industrial Chemistry Department
Participants	52 Students (Sem-2)



INFRASTRUCTURE



- **Names of MSc Students receiving Meritorious Scholarships**

MISA : Fardinkhan Ghori, Jayesh S. Barot

Lupin Scholarship: - Parag Babriya, Sahiel Sharma

- **Names of 1st & 2nd Rank Students**

1st rank Saheil Sharma

2nd rank Saloni Ghodasra

Placement Details

Sr. No.	Name of the Company	Post Offered	No. of students
1	Lupin Ltd., Ankleshwar	Production	8
2	Lupin Ltd., Dabhasa	Production	5
3	Royal Castor Products Ltd., Siddhpur	Production	2
		R & D Chemist	2
4	Royal Castor Products Ltd., Kayan Plant (Siddhpur)	Production	2
		QC Chemist	2
5	Rasayan Laboratory, Lambhvel.	QC Chemist	2
6	Rusan Pharma, Ankleshwar	R & D Chemist	4
		QA Officer	4
7	United Phosphorous Ltd., Jhagadia	Production	8
		QC Officer	2
8	United Phosphorous Ltd., Dahej	QC Officer	1
9	Macleods Pharmaceuticals Ltd., Sarigam (Vapi)	Production	2
		QC Officer	2
1	Torrent Pharmaceuticals, Kadi	QC Officer	3
1	Bharat Parenterals Ltd., Vadodara	Production	1
1 2	ZEB Pharma, Ahmedabad	Marketing Officer (Technical)	1
1	Meghmani Pharma Ltd., Dahej	Production	2
1	Saurashtra Fuel Pvt Ltd., Anjar	Production	1
1 5	Farmson Pharmaceutical Gujarat Pvt. Ltd., Nandesari	QA Chemist	1
1	Apex Healthcare Ltd., Palitana	QC Officer	1
1	Remark Technology, Panoli	Production	2
1	Khawaish life Science, Ankleshwar	Production	1



Optimization process for glycolysis of poly (ethylene terephthalate) using bio-degradable & recyclable heterogeneous catalyst

Khodidas K. Bhanderi, Jeimin R. Joshi, Jigar V. Patel*

Department of Industrial Chemistry, Institute of Science & Technology for Advanced Studies and Research (affiliated to CVM University), Vallabh Vidyanagar, Anand, 388120, Gujarat, India

ARTICLE INFO

Keywords:
Bio-catalyst
Environmental pollution
Glycolysis of waste PET plastics
Optimization parameter
PET waste
Chemical recycling
Waste management
Eco-friendly solution

ABSTRACT

Because of characteristics including simplicity of processing, light weight, recyclability, and low cost of production, plastic production and usage have risen every day. As a result, there is now more waste plastic generated every day, and it will be opening up a brand-new field of study for researchers to investigate and solve these issues. An ecologically friendly approach is needed to solve these problems. One approach is to recycle this kind of waste. There are several ways to recycle used plastics, but practically all of them have good and bad points. About a few decades ago, the glycolysis of used PET polymers gained industrial attention. Since used poly (ethylene terephthalate) (PET) plastics may be recycled using the most advantageous and promising techniques. This works an optimization parameter of chemical recycling of PET waste without utilizing any solvent as a reaction medium by changing a number of variables, such as catalyst types and the molar ratio of EG: PET, catalyst ratio and also recycled catalyst and reagent. The recovered bio-catalyst (DPA/BLA) still maintained excellent catalytic efficiency for PET Glycolysis after six consecutive cycles. Optimized reaction condition was PET:EG (1:16) molar ratio 1% w/w catalyst at 192–200 °C reaction temperature obtaining 60.32% Yield of BHET product at 98.40% of PET conversion. Final product was confirmed by FT-IR, ¹H NMR and GC-MS data.



Chemical modification of waste cooking oil for the biolubricant production through transesterification process

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ARTICLE INFO

Keywords:
Bio lubricants
Alternatives
Green
Renewable

ABSTRACT

Concerns and restrictions around contamination and environmental pollution are developing. The production of waste cooking oil and the pollution brought on by mineral oils are two important issues. The PSSAT's new standards state that cooking oil that contains more than 25% polar compounds is inappropriate for use and should be discarded. Therefore, both issues can be resolved with the aid of chemical modifications to waste cooking oil. Waste cooking oils are an attractive alternative to mineral oils because they are biodegradable and renewable sources of lubricants. The goal of the current research work is to create an environmentally friendly lubricant through transesterification reaction. Fatty acid methyl esters (FAMEs) of WCO with various alcohols (1-Hexanol, 2-Ethyl-1-Hexanol & Neopentyl Glycol) with diverse branching were used to create bio lubricant. As a heterogeneous catalyst, zinc acetate was used to carry out the reaction. Complex esters, which have been produced, have the potential to be used as biodegradable lubricants in industrial lubricant applications. Using the GC-MS technique, the structure of the generated bio lubricant was examined. The structural modification of waste cooking oil resulted in improvement in both physicochemical and tribological properties. The created bio lubricant had improved flash and fire points as well as a superior viscosity index (>120). The generated bio lubricant possesses friction characteristics that are comparable to those of commercial mineral oil-based lubricants. According to the results of this study, waste cooking oil lubricant has a lot of potential for use as a base stock due to its favorable biodegradability and tribological performance.



Short communication

Highly efficient novel nanostructured dendritic macromolecules for remediation of aquatic heavy metal ions

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^b Industrial Chemistry Department, V.P. A.R.P.T.P. Science College (affiliated to Sardar Patel University), Vallabh Vidyanagar 388120, Gujarat, India

ARTICLE INFO

Keywords:
Dendrimer
Environment
Heavy metals
Nanotechnology
PAMAM

ABSTRACT

Environmental pollution is not a recent phenomenon, but it continues to be the greatest threat to humanity and the main factor in environmental morbidity and mortality. The health of people is threatened by heavy metals because of growing industrial activity over the past century. More effort has gone into identifying the most effective methods for adsorbing heavy metal ions and also it is essential to develop new materials for the adsorption of heavy metals due to their great resistance and protracted presence in the environment. Dendrimer is a good way to remove a bulky material. Using 1,3-bis(4-(6-diethylamino-3,5-trifluoro-2-hydroxyphenyl)amino)propane-2-thiol as a dendrimer, we construct hydroxyl-terminated dendrimer up to generation three. Fourier Transform Infrared Spectroscopy (FT-IR), Transmission electron microscopy (TEM), Mass Spectroscopy, ¹H NMR spectroscopy and ¹³C NMR spectroscopy data were used to describe the dendrimer structure. For the purpose of removing metal ions, synthesized sorbent was tested with aqueous solutions of Ni(II), Cu(II) and Zn(II) ions using various parameters like pH, time, and generations were used to evaluate the sorption capabilities of synthesized dendrimers. Fourier transform infrared (FT-IR) techniques and thermo gravimetric analysis (TGA) were used to examine dendrimer-metal complexes. The results of the study show that dendrimer products with higher generations have better sorption properties than dendrimer products with lower generations.

Eco-friendly polymer nanocomposites based on bio-based fillers: preparation, characterizations and potential applications

6

Khodidas Bhandari¹, Jeemin Joshi¹, Vaishali Suthar², Vraj Shah³, Gautam M. Patel³ and Jigar Patel¹

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Biodegradable polymer nanocomposites as electrode materials for electrochemical double-layer capacitors and hybrid supercapacitor applications

10

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Green Synthesis of MgO Nanoparticles for Adsorption of Anionic Dyes from Aqueous Solution

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Abstract

In this research, magnesium oxide nanoparticles (MgO NPs) were prepared from a MgCl₂ solution using an aqueous extract of Moringa oleifera leaves as a green agent. Adsorption of anionic dye such as Congo Red dye from aqueous solution. The MgO Nanoparticle sample was further characterized by Energy-dispersive X-ray spectroscopy (EDX), and Scanning Electron Microscopy (SEM) techniques. The dyes were subjected to prototypical batch adsorption process, including investigation of different parameters like MgO Dosage, Contact Time, Agitation Speed And solution pH. The adsorption isotherm studies were carried out using Langmuir, and Freundlich models. Langmuir was the most suitable model to describe the adsorption isotherm. Experimental results indicate that the prepared MgO powder can remove more than 80.45% of CR dye under optimum operational conditions of a dosage of 0.02-0.10 gm, and a contact time of 20 min for initial dye concentration of 20- 100 mg/L. The isotherm evaluations revealed that the Langmuir model attained better fits to the experimental equilibrium data. The maximum adsorption capacities were 158.73 mg/g of CR dye.

Department of Organic Chemistry

Event Name	Expert Talk
Event Date	07-01-2023
Description	Dr. Jigar Soni, Dean, Faculty of Basic & Applied Sciences, Madhav University, Pindwara, Rajasthan Dr. Jigar Soni delivered a lecture on In-silico method for drug discovery molecular docking in detail and explain how In-silico method is used for the designing of new drug. 80 Students took benefit of the lecture.



Event Name	Student Achievement
Event Date	2022-23
Description	Vedanti Patel & Shrushti Patel M.Sc. (OC) Sem-4 won 2nd price in Best out of Waste Model Making competition (WDC-2023)



Event Name	Student Achievement
Event Date	2022-23
Description	M.Sc. (OC) Sem-2 becomes runners up in Interclass Cricket Tournament 2023



Event Name	Student Achievement
Event Date	2022-23
Description	Shreya Patel M.Sc. (OC) Sem-4, won 2nd price in Interclass Badminton Tournament (Female-Singles) 2023



Event Name	Student Achievement
Event Date	2022-23
Description	Jay Patel M.Sc. (OC) Sem-4, Stood second in Inter class Chess Tournament 2023 and Piyush Vadher M.Sc. (OC) Sem-4, Stood first in Inter class Chess Tournament 2023



Event Name	Student Achievement
Event Date	2022-23
Description	M.Sc. (OC) Sem-2 becomes runners up in Interclass Volleyball Tournament 2023

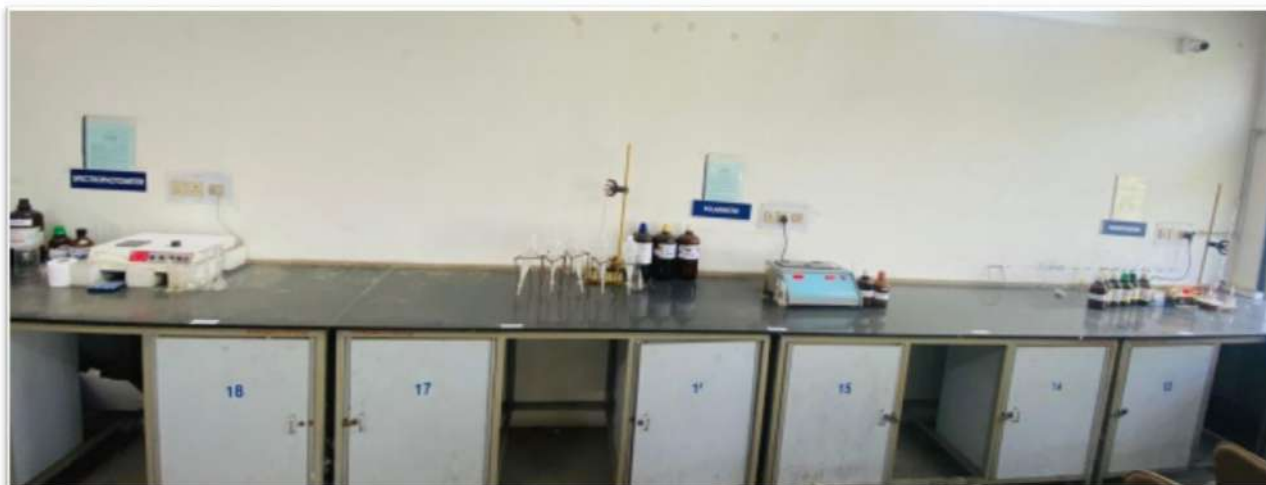


Competitive Exams



SHIVAM VISPUTE
M.Sc. (Organic Chemistry),
Batch: 2021-2023
GATE Qualified: March-2023

Infrastructure (Pics of Laboratory & Instruments)



Scholarship

Sr. No.	Academic year	Name of student	Agency/ Donor
1	2022-2023	1. Vinodkumar Karsanbhai Vaghela (OC) Sem-2 2. Jatin Dhirubhai Kakadiya (OC) Sem-4	Smt. Saraswatiben Manubhai Patel and Smt. Vijayaben V. Patel Scholarship
2	2022-2023	1. Vispute Shivam Rajesh (OC) Sem-4 2. Dipali Pratapbhai Rathod (OC) Sem-2 3. Mahammasfaijan Liyakatali Saiyad (OC) Sem-2	Sh. Aurbindo Mataji Scholarship

Placement Details

Name of company	Post offered	No. of Students
O2h Discovery Pvt. Ltd., Ahmedabad	Chemist-R & D	10
SynZeal Research Pvt. Ltd., Ahmedabad	Chemist-R & D	05
Piramal Enterprises Limited- Discovery Solutions, Ahmedabad	Chemist-R & D	09
Alentris Research Pvt. Ltd, Ahmedabad	Chemist-R & D	02
Atul Ltd, Valsad	Chemist-R & D	01
Imperial Oilfield Chemicals Pvt. Ltd., Vadodara	Chemist-R & D	01
Aalidhra Pharmachem Pvt. Ltd., Nandesari	Chemist-R & D	07
Maharshi Pharma Chem Pvt. Ltd. Alindra	Chemist-R & D	03
Hemarsh Technologies, Vadodara	Chemist-R & D	02

Seminars / Workshops / Conferences

Dr. Niraj H. Patel has attended and presented a poster on “Synthesis and Antimicrobial Activity of Pyrido[3,2-c] Coimarin Derivatives.” at “National conference on Chemistry & Environment (NCCE-2023)” held at Dept. of Chemistry Sardar Patel University, Vallabh Vidyanagar from 17th March 2023 to 18th March 2023.

Dr. Kinnari A. Bhatt has attended and presented a poster on “Preparation, Characterization and Thermal Stability Comparison of Na-PCMTKP-g-PMMA.” at “National conference on Chemistry & Environment (NCCE-2023)” held at Dept. of Chemistry Sardar Patel University, Vallabh Vidyanagar from 17th March 2023 to 18th March 2023.

Miss Priyamvada Singh has attended and presented a poster on “Synthesis and Characterization of Chitosan using Graft Polymerization.” at National Conference on Medicinal Chemistry and Drug Design” held at Sir P.T. Science College, Modasa on 28th April 2023.

Mr. Jay Gamihas attended and presented a poster on “Solubilization of Polycyclic Aromatic Hydrocarbons (PAHs) in PEO-PPO-PEO type linear and star block copolymers.” at National Conference on Medicinal Chemistry and Drug Design” held at Sir P.T. Science College, Modasa on 28th April 2023.

Department of Surface Coating Technology

Event Name	Expert Talk
Event Date	3 rd January 2022
Description	Alumni and Industrial Expert Dr. Chintan Patel (BASF, Germany) delivered an expert lecture on "Global Current Trends in Coating Industries".



Event Name	Industrial Visits / Educational Trips
Event Date	6 th September 2022
Description	Purnima Enterprise, Ahmedabad, Gujarat-380060



Infrastructure (Pics of Laboratory & Instruments)



Scholarship

Sr. No.	Academic year	Name of student	Agency/ Donor
1	2022-2023	1. AVINASH SUBHASH GANGE 2. BHAVIKA SHARMA 3. PRANAV PRASHANT PATIL 4. ANKUR RAJNIKANT PATEL 5. MINESH MAHENDRASINH PARMAR	ASIAN PAINTS CHARITABLE TRUST, Mumbai

Placement Details

Sr. No.	Company Name	Name
1.	Arya Industrial Solutions, Halol	1
2.	Axalta Coating Systems India Pvt.Ltd., Savli GIDC, VADODARA	1
3.	Berger Nippon Paint Automotive Coating Pvt. Ltd., Noida	1
4.	Berger Paints, Vadodara	2
5.	Golcha Associated, Jaipur	1
6.	Grand Polycoat Co. Pvt. Ltd., Padra, Vadodara	8
7.	Kansai Nerolac Paints, Sayakha	3
8.	Reliable Paints, Savli GIDC, Vadodara	2

Department of Polymer Chemistry

Event Name	Industrial Visits / Educational Trips
Event Date	06-09-2022
Description	25 Students of M.Sc. (Polymer Chemistry) course, batch 2021-2023 visited M/s. Crest Composites and Plastics Sketra, Kheda



Event Name	On-hand Instrumentation Training at SICART
Event Date	2022-23
Description	On hand Instrument training of GC/GC-MS, GPC & DSC/TGA



Infrastructure



Scholarship

Sr. No.	Academic year	Name of student	Agency/ Donor
1	2022-2023	Ms.Mitali Yadav Mr Meet Patel Mr Rudresh Trivedi Mr Nilesh Vala	SHODH Scholarship from KCG

Placement Details

Sr. No	Name of the Company	Number of students appeared	Number of students placed
1	Cheminox Enterprises, Vadodara	2	1
2	Shree Rama Multitech. Ltd	2	1
3	Admark Polycoats Ltd., Vadodara	5	3
4	Satyendra FIBC Pvt Ltd, Sarsa	2	1
5	Satyendra Packaging Pvt Ltd, Navli	2	1
6	Sumip Composite Ltd., Ahmedabad	2	1
7	Anar Chemicals Ltd., Ahmedabad	5	2
8	Aditya Birla Copper Ltd., Dahej	2	1
9	Keva Flavors & Fragrances, Mulund, Mumbai	2	1
10	Barger Paint India Ltd. V. U. Nagar	2	1
11	RMC Switchgear Pvt. Ltd., Jaipur	2	1
12	Ark Golden India Pvt. Ltd., Vadodara	2	1

Seminars / Workshops / Conferences

- One day national conference on emerging trends and innovative research in chemical science, University of shree govind guru, godhra on 11th January 2023.

Name of the Presenter	Title of the Poster
Rushik N. Patel and Amit Thummar	Studies on polymeric blends based on some natural and synthetic thermoplastic polymers
Nilesh S. Vala, Kaushal J. Bavaliya and Mahendrasinh M. Raj	Studies on poly(lactic acid) based polymeric blends” at one day national conference on emerging trends and innovative research in chemical science
Meet Patel and Mahendrasinh M. Raj	Synthesis and characterization of modified phenolic resin and its application in composites
MitaliYadav and MahendrasinhM.Raj	Studies of composites based on modified multifunctional resin system
Kaushal J. Bavaliya, Nilesh S. Vala, and Mahendrasinh M. Raj	Studies on poly(lactic acid) based polymeric blends
Rudresh M. Trivedi and Mahendrasinh M. Raj	Development of modified cardanol based epoxy resin and its composites based on natural and synthetic reinforcing materials

Trainings / Summer Internships

- 7 Students of our department has completed summer training in different Industries.

Department of Environmental Science and Technology

Event Name	Alumni Speak
Event Date	2022-23
Description	Dr. Pratik Mehta (Head, HSEF), Essar Power Limited, Jamnagar, has been invited as speaker. He is alumni of EST Department, ISTAR.



DR. PRATIK MEHTA

**(HEAD, HSEF) @ ESSAR POWER GUJARAT LIMITED,
JAMNAGAR**

ISTAR is one of the prime institutions where one can see their dreams coming true. It is one of the best academic institutions with excellent faculty and infrastructure. EST department harbours very knowledgeable and cooperative faculty with state-of-the-art teaching techniques.

The best part of EST, ISTAR is that all the faculties are very much amiable and approachable and one can meet them practically at any time.

The course content of M.Sc. Environmental Science & Technology (EST) is very much in line with today's industrial requirements. The department faculties impart the subject guidance regularly. Flexibility and understanding are the key factors; one could easily visualize it between students and faculties of EST, which ultimately leads to the successful results every year. At EST, ISTAR, the academic environment is very much free of stress with friendly behaviour of faculty members.

The department of EST always ensures the good environ and user-friendly atmosphere to bring out the student's hidden talents by conducting extra and co-curricular activities round the year. In brief, EST, ISTAR is a final destination place for every student, who wishes to fulfil his dream for the bright career ahead. I wish all the faculties a very best to shape up the student's future.

Event Name	Co-Curricular Activities
Event Date	Dates are mentioned in Table
Description	EST department organized different events as a part of co-curricular activities. The glimpses of that events are presented in the below table.

Date	Event Name	Competition	Winners	Dept.	Rank
27.9.2022	Climate Change Youth Outreach Program	Elocution	Meet H. Navadiya	IC	1st
			Khilan Patel	MIHS	2nd
			Nirbhay R. Valu	IC	3rd
27.9.2022	Climate Change Youth Outreach Program	Essay Writing	Charmee Satasiya	EST	1st
			Sahiel N. Sharma	IC	2nd
			Jimitsinh B. Parmar	MIHS	3rd
27.9.2022	Climate Change Youth Outreach Program	Slogan Writing	Arya Seth	EST	1st
			Nikunj Y. Patel	MIHS	2nd
			Jagruti Devare	EST	3rd
7.10.2022	Wildlife Week Celebrations	Online Quiz on Wildlife	Meet H. Patel	IC	1st
			Ketul J. Patel	IC	2nd
			Fenil V. Patel	IC	3rd
16.10.2022	World Food Day	Online Quiz on Food	Ruchik P. Patel	MIHS	1st
			Akshatsinh Hada	IC	2nd
			Raj V. Chhodavadiya	EST	3rd
2.2.2023	World Wetland Day	Online Quiz on Wetlands	Raj Sureshsinh Thakor	IC	1st
			Jigar Parmar	IC	2nd
			Trun J. Patel	IC	3rd
28.2.2023	National Science Day	Online Quiz on Science	Kashish Bodana	EST	1st
			Jesal Karmur	EST	2nd
			Shrey Patel	IC	3rd
13.3.2023	Women's Day	Artifact Competition	Birju Vaishnani	EST	1st

Event Name	Workshop on Industrial Hygiene related Instruments at the Workplace
Event Date	04-03-2023
Description	CVMU'S ISTAR college Department of Environmental science (EST) and Hygiene and safety jointly organized WORKSHOP on Industrial Hygiene related Instruments at the workplace on account of National Safety Day-2023 on the 4th March,2023.

CVMU'S ISTAR college Department of Environmental science (EST) and Hygiene and safety jointly organized WORKSHOP on Industrial Hygiene related Instruments at the workplace on account of National Safety Day-2023 on the 4th March,2023. Hazard monitoring is based on the acquisition and the interpretation of a signal indicating changes in behaviour or properties of a hazardous phenomenon or the occurrence of events. In this context, the Alumni expert Mr. M. Bilal was invited. Mr. Bilal was mainly emphasized on the instruments, which are used for measurement of noise, particulate matter, volatile organic matter, gaseous pollutants, heat measurement, and light measurement. He also gave on-hand instrumentation training to our students.



Event Name	Student participation in Hackathon
Event Date	28.2.2023
Description	State-level Competition organized by CHARUSAT

Mr. Jay Patel and Ms. Khushi Bhavsar both have presented one model on plastic to power. They both actively participated in the CVMU Hackathon 2023 where youth will actively participate, design, develop, and demonstrate their innovative skills. They both have an attempt to solve problems regarding Solid Waste collection, sorting, and their serious issues on a daily basis, instilling a culture of product creation and a problem-solving approach in students.



Event Name	Industrial Visits / Educational Trips
Event Date	24-01-2023
Description	One Day visit to Meteorological Department, Anand Agriculture University



CVMU'S ISTAR college Department of Environmental science(EST) organized a one-day visit to Meteorological Department, Anand on 24th January, 2023. In which students of M.Sc. 2nd semester of EST enthusiastically participated. Dr. B.I. Karande, Asst. Prof. from Meteorological department gave a knowledge about various meteorological instruments like cup anemometer, evaporating pan, wind vane, sunshine recorder, recording type of rain gauge

and automatic weather instruments. Karande sir also gave the brief introduction about working of automatic weather station. The students also see the vermicomposting techniques like Bangalore method, Indore method and barrels methods to convert the agriculture waste into the vermiwash and vermicompost by using worms. The students also learned of different medicinal plants and their values and benefits by visiting the Medicinal plant nursery.

Event Name	Industrial Visits / Educational Trips
Event Date	06-01-2023
Description	Mechanical Workshop of ADIT College, New Vallabh Vidyanagar



One-day visit is organized in Mechanical workshop of ADIT college for MSc semester II students to enrich the knowledge of identification of occupational hazards and their preventive measures on 6th January, 2023.

Students must learn the machines involving moving parts, sharp edges, hot surfaces and other hazards with the potential to crush, burn, cut, shear, stab or otherwise strike workers if used unsafely.

Event Name	Industrial Visits / Educational Trips
Event Date	26-12-2022
Description	Excursion to Nal Sorvar Bird Sanctuary



CVMU's ISTAR College Department of Environment Science and Technology and Environment Science jointly organized one-day educational visit to Nal Sorvar Bird Sanctuary on 26th December 2022 successfully.

Mainly inhabited by migratory birds in winter and spring, it is the largest wetland bird sanctuary in Gujarat, and one of the largest in India. It was declared a bird sanctuary in April 1969. In which the students of M.Sc. fourth and second semester of Environment Science and Technology department of ISTAR College

participated enthusiastically. In which students were aware about the migratory birds, their habitat, and importance of biodiversity.

Students also visited island in and around by Nal Sovar bird sanctuary In addition to that tourist guide emphasized on importance and significance of different kinds of Winter migrants from the north including purple moorhen, pelicans, lesser and greater flamingos, white storks, four species of bitterns, crakes, grebes, brahminy ducks and herons visit Nal Sarovar. Students have also collected the water sample and sediment sample from this wetland, and analyzed the hydrochemical parameters and quality assessment.

Event Name	On-hand Instrumentation Training at SICART
Event Date	01-05-2023 to 03-05-2023
Description	Training on Sophisticated Instrumentation at SICART for Sem-III Students



Training on Sophisticated Instrumentation by SICART is given to 4th semester students on 1.5.23 to 3.5.23. SICART professionals imparted training on GC/GC-MS, CHNS/O Analyzer, Environmental Lab (including Heavy Metals Analysis), and Air Monitoring Mobile Van. At the end of the training, Certificates were given to all students. The Certificate provided by SICART will be very much helpful in enriching your knowledge, expertise, and skills in calibration, handling, maintaining, sample loading, and analysis of output results at lab as well as industrial scales.

Event Name	Placement Details
Event Date	2022-23
Description	Details are as per below table

Company Name	Designation	Students placed
Akshar Consultants, Ahmedabad	Env. Executive	01
Amul, Anand	Lab Chemist	01
APM Terminal, Pipavav	HSE Supervisor, Safety Supervisor	02
Baxter Pharma, Ahmedabad	Safety Officer	01
Chemico Vista, Ankleshwar	General Manager, AGM	02
DCM, Ankleshwar	Env. Trainee	01
Farmson Pharma, Nandesari	Lab Chemist	01
Go Green Mechanisms, Ahmedabad	Lab Chemist	01
Green Circle Inc., Baroda	Lab Chemist	01
IOCL, Baroda	Safety Supervisor	01
Kadam Environmental Consultants, Baroda	Lab Chemist, Field Monitor	02
KRIBHCO, Surat	Fireman	01
Kukdo Chemicals, Dahej	Safety Officer	01
Panch Enviro (OPC) Pvt. Ltd., Kalol	Lab Chemist	03
PCM Industries, Masat	Env. Manager	01
Pidilite	Lab Chemist	01
Poll Cont Associates, Baroda	Env. Trainee	01
Sajjan India Ltd., Ankleshwar	Safety Officer	01
Shiva Performance, Karakadi	EHS Manager	01
Siddhi Green, Ankleshwar	Env. Executive	01
SRF Ltd., Bharuch	Env. Engineer	01
SRF Ltd., Dahej	Env. Apprentice	03
TVS, Sanand	Safety Officer	01
UPL (Unit-12), Dahej	EHS Manager	01
UPL, Jhaghadia	Safety Supervisor	01

Event Name	PhD Students receiving SHODH Scholarship from KCG
Event Date	2022-23
Description	Mr. Hiren J. Chaudhari

Event Name	Research Projects / Funding received from Regional/National/International Organizations
Event Date	2022-23
Description	EST Department received a Research Project Grant on Impact of Climate Change on Air Quality, Health, and Vulnerability, worth Rs. 5 Lakh for 2 Years, handled by Dr. Hiren B. Soni & Dr. Dhruvi S. Patel.

Event Name	Trainings / Summer Internships
Event Date	2022-23
Description	<p>Following students of 2nd semester had undergone summer internships:</p> <p>Berger Paints, V.U. Nagar: Urja Patel, Shreya Vasava</p> <p>CETP (NIA), Nandesari: Vatsal Raj, Navin Rathod, Charmi Satasiya</p> <p>Green Circle, Inc., Baroda: Moly Arora</p> <p>Jyoti Om Consultancy, Ankleshwar: Birju Vaishnani</p> <p>Kadam Enviro Consultants, Baroda: Jagruti Devare, Raj Patel</p> <p>Prakruti Environmental Engineers, Baroda: Jay Patel, Khushbu Bhavsar, Khushbu Desai</p>

Department of Industrial Hygiene & Safety

Event Name	Alumni Speak
Event Date	2022-23
Description	Mr. Yugen Dave, Industrial Hygienist, Tata Consultancy Services ,Mumbai



Mr.Yugen Dave

Industrial Hygienist

Tata Consultancy Services ,Mumbai

I am honoured to have had opportunity to complete my M. Sc. in Industrial Hygiene and Safety through this department. The program provided a rigorous and comprehensive education that prepared me for the professional challenges of the field. The program offered a broad range of course that covered key aspect of the Industrial requirement. These courses were taught using latest Industrial Hygiene monitoring techniques that help students to update knowledge stay engaged and motivated. Overall, I highly recommend this Industrial Hygiene and Safety Program to anyone looking to develop a career in this important filed.

Curricular Activities-Eco Club Competition Prize Winners

Event Name	Expert Talks – Importance of Industrial Hygiene
Event Date	2022-23
Description	Mr. Tapan Joshi



Event Name	Extra-Curricular Activities – Birthday Celebrations with students
Event Date	2022-23



Event Name	Industrial Visits / Educational Trips
Event Date	2022-23
Description	Visit to ADIT Workshop



Infrastructure (Pics of Laboratory & Instruments)

Air Sampling Instrument



Meritorious Scholarships - RECOH EHS LLP Cash Prizes

Mr. Monark P Dave and Mr. Pankaj Sharma



On-hand Instrumentation Training at SICART



Placement Details

Name of Company	Place	Designation	Name of Student
Pixon Energy Green Energy Pvt. Ltd	Rajkot,Gujarat	Safety Officer	Aditya V Upadhyay
ESG Global Partner Pvt. Ltd	Gurgaon, Haryana	Industrial Hygienist	Bhavya Singh
ISS Pvt. Ltd	Vadodara,Gujarat	Industrial Hygienist	Daivik Shukla
Pro Safe EHS	Vadodara,Gujarat	Industrial Hygienist	Dhruti Soni
SHAH Industrial Hygiene Solutions LLP	Vadodara,Gujarat	Industrial Hygienist	Jay Suvagiya
Kadam Environmental Consultancy	Vadodara,Gujarat	Industrial Hygienist	Keyur Lunagaria
RECOH EHS LLP	Vadodara,Gujarat	Industrial Hygienist	Monark P Dave
RECOH EHS LLP	Vadodara,Gujarat	Industrial Hygienist	Palak Patel
IHSS	Nadiad , Gujarat	Industrial Hygienist	Pankaj Sharma
Kalki Healthcare Pvt. Ltd	Vadodara,Gujarat	Safety Officer	Ravikumar Patel
Indo Baijin Chemicals Pvt. Ltd	Dahej, Gujarat	EHS	Rakesh M Barad
Saint Gobain PCR-Halol	Halol Gujarat	Safety Officer	Ruchik Patel
AM/NS India Ltd	Surat,Gujarat	Safety Officer	Shreyashkumar D Patel
Kalki Healthcare Pvt. Ltd	Vadodara,Gujarat	Safety Officer	Viral B Patel
KRIBCHO	Surat,Gujarat	Fire and Safety Officer	Vivek B Kothiya
Adani Port & SEZ Ltd	Surat,Gujarat	Safety Officer ©	Zeel J Patel

Department of Valuation

Event Name	Alumni Speak
Event Date	2022-23
Description	Mr. Pritesh Kancharlawar - M.Sc.(Plant and Machinery Valuation) Mr. Kushal Jajada – M.Sc.(Real Estate Valuation)



Mr.PriteshKancharlawar-M.Sc.(Plant and Machinery Valuation)

Valuation of Plant and Machinery course is a unique and full-time post-graduation program that is first started in India. I joined this program in 2016 and completed it in 2018. This course is a package of economics, law, technical subjects, & valuation topics and it gives a brief idea about the procedure for the valuation of plant and machinery in different scenarios using different methods and approaches. This course helped me a lot in my career progress and the course faculties are the best and very knowledgeable in the valuation field.

Current position – Associate at EY India, Mumbai.



Mr. Kushal Jajada – M.Sc.(Real Estate Valuation)

Enrolling in ISTAR college for my post-graduation turned out to be one of the best decisions I've made. The education and knowledge I acquired from this institution not only helped me pass the IBBI valuation examination with ease but also paved the way for a successful career as a Real Estate Valuer. As a Maharashtrian, I initially had concerns about the local language and staying away from my family for two years in a different state. However, the faculty and students at ISTAR made this transition incredibly smooth, and time seemed to fly by in the blink of an eye.

The campus itself was equipped with technology, an excellent library, and an efficient administrative process, ensuring a hassle-free experience for all students. I am immensely grateful to Mr. Rupesh Shah sir and Mr. Nelson Macwan sir, along with the entire faculty, for providing perfect nourishment of knowledge to our seed-like dreams of becoming real estate appraisers.

Event Name	Industrial Visits / Educational Trips
Event Date	4th February, 2023
Description	Six students of second semester of M.Sc. (Plant and Machinery Valuation) visited HLE Glascoat.



Event Name	Expert Talks
Event Date	11-04-2023
Description	Rupesh T. Shah gave expert talk on “Valuation of Real Estate Projects” at BVM Engineering College, Vallabh Vidyanagar on 11-04-2023.

Event Name	Seminars / Workshops / Conferences
Event Date	28-01-2023
Description	Rupesh T. Shah attended one day seminar on “Pitfalls of Valuation Profession – A broader view” organised by Gujarat Institute of Civil Engineers and Architects (GICCEA) at Amdavad on 28th January 2023

Event Name	Research Papers published by Faculty
Event Date	28-01-2023
Description	A paper titled “Capacity Building for Valuation Profession” published in rnal of Institution of Valuers (53rd Indian Valuers congress) held at Guwahati, Assam during 16-18 December 2022. Same published in January 2023 edition of Indian Valuer. Author: RupeshT.Shah

Placement Details

Sr. No.	Company Name	No. of Students placed
1	Arohan Building Construction	1
2	Best Appraisal Consultant	1
3	Best Mulyankan consultants limited	1
4	Cogs Associates	3
5	Creative Propstech Pvt Ltd	1
6	CSV Techno Services Pvt Ltd	1
7	DHYEY ASSOCIATES	1
8	ELYAS PANWALA VALUER	1
9	Fullerton India Credit Company Ltd	1
10	Kakode& Associates	1
11	Knight Frank (India) Pvt Ltd	1
12	KPMG India	2
13	Mehta Associates	1
14	Multi MulyankanInc	1
15	R P Consultants	1
16	RBSA advisors	3
17	Shilp Consultant &Valuers Pune	1
18	Shree Dattvaluers & Associates	1
19	Shree MahavirValuer& Associates	1
20	Varthana Finance Pvt Ltd	1
21	VSC INFRA PVT LTD	1
22	VSCS	1
23	Arohan Building Construction	1
24	Best Appraisal Consultant	1
25	Best Mulyankan consultants limited	1
26	Cogs Associates	3
27	Creative Propstech Pvt Ltd	1

Department of Information Technology

Event Name	Alumni Speak
Event Date	2022-23
Description	AVNISH PATEL(Batch 2018-2020) (FRONT-END DEVELOPER) @ TECHSTALWARTS SOFTWARE DEVELOPMENT LLP



AVNISH PATEL(Batch 2018-2020)

FRONT-END DEVELOPER

TECHSTALWARTS SOFTWARE DEVELOPMENT LLP

My academic career in ISTAR was one of my golden periods of my life. Vidyanagar is known for typically enjoying the student life but with ISTAR i enjoyed my student life without putting negative impact on my studies. Teachers in IT department were always supporting and ever motivating with studies and extracurricular activities. If Vidyanagar is like a sun who gives one colour to the student, i must say ISTAR is like the prism, which glorifies each colour of the student. The IT department of ISTAR also has an active placement cell which helps the students and polish them rigorously, leading them to shine like diamonds in the firm in which student gets placed. Ambiance of the campus is very positive and starts with spiritual recitation. Apart from lectures, IT department of ISTAR also conducts events, which nurture the programming skills of the students. The time spent with ISTAR IT department is very memorable and i will cherish it for my life.

Placement Details

Company Name	Place	Designation	Name of Students employed
The One Technologies	Ahmedabad	Software Developer	Laxmi Naran Valani
The One Technologies	Ahmedabad	Software Developer	Singh Riya Anand
The One Technologies	Ahmedabad	Software Developer	Machhi Shivangeeben Rakeshkumar
Synconics Technologies	Ahmedabad	Jr. Application Engineer	Meer Ravi Navghanbhai
PSK Technology	Surat	Mean Developer	Sakariya Nikhil Rasikbhai
PSK Technology	Surat	Mean Developer	Gadhiya Vasu Rameshbhai

Infrastructure (Pics of Laboratory & Instruments)



Student Achievement

01 student of M.Sc.(IT), ISTAR (ADITI RAJNIKANT SUTHAR) participated & successfully completed NPTEL Online Certification course on "Python for Data Science" during Jan-Feb, 2023 conducted by IIT, Madras and SWAYAM - NPTEL Online Certification.



Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
ADITI RAJNIKANT SUTHAR
for successfully completing the course

Python for Data Science

with a consolidated score of **68** %

Online Assignments	22.5/25	Proctored Exam	45.15/75
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Total number of candidates certified in this course: **4711**


Prof. Devendra Jalihal
Chairperson,
Centre for Outreach and Digital Education, IITM

Jan-Feb 2023
(4 week course)


Prof. Andrew Thangaraj
NPTEL, Coordinator
IIT Madras



Indian Institute of Technology Madras



Roll No: NPTEL23CS21544100197

To validate the certificate



No. of credits recommended: 1 or 2

Department of Geoinformatics

Event Name	Expert Talk
Event Date	As mentioned in photos
Description	Various Expert talk arranged by the department.

Webinar on :

ISRO Mission Chandrayan : Its Payloads & Applications

By: Dr. Mamata Chauhan
Scientist – IIRS
ISRO – Dehradun

Date: 18th March, 2023
Time : 1:30 AM to 01:00 PM

Link For Registration :
<https://forms.gle/AZfQrcQJbM22XxG4A>

Sponsored by Indian Society of Geomatics
Organized by ISTAR & ISG V V Nagar Chapter
Coordinate by Krunal Suthar - krunal@istar.edu.in

Last date of Registration: 18th March 2023
E - Certificate will be given to all Register Participants

Webinar on :

Introduction of Lidar Technology

By: Dr. Anil Kumar
Scientist – IIRS
ISRO – Dehradun

Date: 18th March, 2023
Time : 10:00 AM to 11:30 AM

Link For Registration:
<https://forms.gle/AZfQrcQJbM22XxG4A>

Sponsored by Indian Society of Geomatics
Organized by ISTAR & ISG V V Nagar Chapter
Coordinate by Krunal Suthar - krunal@istar.edu.in

Last date of Registration: 17th March 2023
E - Certificate will be given to all Register Participants

Webinar on :

Machine Learning and Remote Sensing

By: Dr. Koyel Sur
Scientist – PRSC
ISRO – Ludhiana

Date: 7th Jan, 2023
Time : 10:00 AM to 11:30 Am
View : <https://youtu.be/AiovwMf2ZYI>

Sponsored by Indian Society of Geomatics
Organized by ISTAR & ISG V. V. Nagar Chapter
Coordinate by Krunal Suthar krunal@istar.edu.in

Last date of Registration: 5th January 2023
E - Certificate will be given to all Register Participants

Registration Link: <https://forms.gle/xk5yGF2KUzvsyhIM9>

Webinar on :

Mobile & GIS Technology

By: Dr. Kamal Pandey
Scientist – IIRS
ISRO – Dehradun

Date: 7th Jan, 2023
Time : 11:30 AM to 01:00 PM
View : <https://youtu.be/AiovwMf2ZYI>

Sponsored by Indian Society of Geomatics
Organized by ISTAR & ISG V. V. Nagar Chapter
Coordinate by Krunal Suthar krunal@istar.edu.in

Last date of Registration: 5th January 2023
E - Certificate will be given to all Register Participants

Registration Link: <https://forms.gle/xk5yGF2KUzvsyhIM9>

Event Name	Industrial Visit & Expert talk
Event Date	22nd November 2022
Description	VISIT & Expert Talk at VSSEC-ISRO Ahmedabad
Expert Speaker	Dr. Hiren Bhatt & Dr. Paresh Sarvaiya



Event Name	Field Training / Industrial Visit
Event Date	6,7,8th February 2023
Description	DGPS & Total Station Training
Expert Speaker	Trishunya Consultancy



Event Name	Industry Expert (Alumni Talk)
Event Date	4th February 2023
Description	Awareness of GIS data usage in terms of development
Expert Speaker	Mr. Ankit Hemnani & Ms. Rose

Event Name	A Seminar on AWS (Amazon Web Services)
Event Date	27th December, 2022
Description	Gaming Fest 2022
Expert Speaker	ITC Mogri

Department of Instrumentation & Control - Physics

Event Name	Alumni Speak
Event Date	2022-23
Description	KANDULA VENKATASAINATHREDDY Rajveersinh Gohil

KANDULA VENKATASAINATHREDDY (Trainee Service Engineer –Inkarp Instruments Services) - Instrumentation & Control, 2020-2022

College Infrastructure: The infrastructure of our ISTAR College is good. The campus is clean and gives good vibes. Along with that, library, Labs, etc., are available. There are comfortable chairs; projector is there for better understanding in academics. Library and classrooms are spacious.

Academics: The teachers here are very helpful and qualified. Their way of teaching is good, and also they are always available if you need any help or want to share something. The teachers here are very helpful, polite and also the faculty was highly qualified, and they had complete knowledge of the subject, which they were teaching. Apart from the theoretical knowledge, they also try to give us the practical knowledge by organising events, class projects.

Placements: The placements of our college are good. Our placement cell is working hard to place students in great companies. There are good placements, great teachers, and excellent facilities with great Infrastructure.

Rajveersinh Gohil –Batch 2020-2022

Most humbly, My name is Rajveersinh Gohil and I am a pass-out student of Physics Department of Reputed ISTAR College. My overall experience has been amazing, and the college is having an amazing infrastructure. College has provided me with a number of opportunities to grow and explore my skills. The emphasis on sports along with education always helped me a lot. I have always found a positive and healthy environment and the teachers are highly supportive especially Dr. Himanshu Kapse sir and Krunal Sir. I loved their teaching way and how they used to communicate with us apart from studies. Dr. Kapse Sir always supported me in my project work and with his help; I was able to complete my Project work in Fourth semester. I loved performing practicals in Practical lab. I am grateful to god that I was learning under these teachers in my 2 years of MSc. I am highly thankful to you for providing me with an opportunity to be a part of your College. It has added a number of values to my life. Currently I am working in a MNC Company named Metrohm India Private Limited. Many of my colleagues in Metrohm were part of ISTAR College.

Co-Curricular Activities

Date	Type	Title & by	Organizer
25-02-2023	Seminar	Working Model presented at Science Manthan Shubham Gupta & Vikash Sharma presented	PDPIAS, Charusat, Changa
4-02-2023	Webinar	Webinar on Career after PG All students participated	ISTAR & IfAS, Pune

Curricular Activities Organized

1. Workshop on “Robotics” in collaboration with Prolific Systems & Technologies Pvt. Ltd.
2. State level online workshop on “SCADA Software” in collaboration with Prolific Systems & Technologies Pvt. Ltd.

Expert Talks

27-12-22	Seminar	Amazon Web Services – Concepts All students attended	IT Dept. and ITC, Mogri
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Extra-Curricular Activities

9-02-2023	Boot Camp	Design Thinking, Innovation and Startup 3 students participated	ISTAR & NVPAS SSIP Cell-CVMU
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Industrial Visits / Educational Trips

20-02-2023	Visit	Microflat Datums, Vitthal Udyognagar All students participated	ISTAR
1-10-22	Visit	Adiarectech and AJ Technologies, Vadodara	ISTAR

Infrastructure



Names of PhD Students receiving SHODH Scholarship from KCG

1. Diyang Ka.Patel (Instrumentation & Control)
2. Ankita Mahaliya (Instrumentation & Control)

Names of 1st & 2nd Rank Students (Sem-II & Sem-IV) (To be included in June, 2023)

- Sem IV – Afif Patel 1st (Physics)
- Sem II – Jaymin Sargara 1st, Illesh Baria 2nd (Physics)
- Shubham Gupta & Vikash Sharma 1st, Ashish Upadhyay 2nd (Inst. & Control)

Placement Details (Company Name, Place, Designation, Name of Students employed)

Metrohm India Private Limited	Vadodara	Trainee Engineer (Service)	Arjit Tripathi, Rajveer
Artee Flow Control	Vadodara	Engineer Trainee	Prachi D Prajapati
Nucleie Bio	Vadodara	Trainee Sales & Service	Ruchir Patel
Inkarp Instruments Services	Ahmedabad	Trainee Service Engineer	K Venkata Sai Nath Reddy

Dwij Oza, Himanshu Kapse
 Turkish Online Journal of Qualitative Inquiry (TOJQI)
 Volume 12, Issue 7, July, 2021:1028 – 1033

Colour Temperature based Light Ambience Control Application for Mood using Arduino

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 * Head, Department of Instrumentation and Control Institute of Science & Technology for Advanced Studies & Research (ISTAR), Vallabh Vidyanagar, Gujarat, INDIA
 *Corresponding author: * dwj@oza@gmail.com, * h.kapse@istar.edu.in

Abstract

Normally, when a person moves from outdoor area having bright light to an indoor area with light of not similar brightness, it affects mood and also dynamic activities within body. This paper presents the possibility of keeping the Mood constant by implementing the Arduino based system to control the Colour Temperature of working space as that of outdoor light. Here we have used high sensitivity, 28 blocking RGB sensor to acquire ambient light. Colour Temperature from obtained from RGB is sent through unshielded Arduino Nano controller. The range of 1000K to 10000K is considered for the study. These values are mapped for controlling pure white and warm white to glow LEDs similar to ambient light. General appearance of light is categorized in three forms viz warm white, cool white and day light according to its varied Colour Temperature. The system was successfully implemented by varying Colour Temperature through different sensors and mapped those values for glow of LEDs to maintain the light ambience. When the indoor light ambience becomes same as that of outdoor ambient light it helps to be more convenient.

Keywords: Arduino Nano, Mood, RGB Sensor

1. Introduction

As we know that human eyes can automatically adjust to different light and CT (Colour Temperature) to sense the right color but digital camera requires adjustment to detect light for better color reproduction. But in case a person wears suddenly within an area or room with varied light temperature then this may cause drastic change in mood and it will also harm human eyes. Based on light therapy studies it is found that least red, circadian rhythm and sleep are affected by different light wavelengths [10]. The reason behind this is that different light wavelengths stimulate the body to release varying hormones. Serotonin is released when high CT triggers and affects our energy level and mood. This is generally occurring light from the sun during the day that related to its blue light or a cool temperature. The short wavelength in form of blue light on the eye helps to promote a positive environment and to increase productivity. Melatonin causes relaxation and calmness with sleep feelings because of low color temperature [5]. Natural red light at the end of the day with low color temperature is often called as warm light. To remain alert and active the eye light color at the night time of day is required which in turn helps to boost body's ability to calm down and when was necessary CT is considered as one of the most important parameter and if don't used in correct proportion results in imbalance with colour different from the actual case. The light spectrum that is radiated from a "blackbody" is well described by CT to that of surface temperature. When surface temperature becomes red hot and when it is in higher temperature it is white hot. Likewise various blackbodies at distinct CT of white light contain various distribution of wavelength across the visible spectrum. Normally CT is a characteristic of visible light

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REMOTE MONITORING SYSTEM FOR AGRICULTURAL APPLICATION

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 kachhiadivyang@gmail.com*

Abstract

The earth's soil layer is an essential component for crop which provides mechanical support and nutrient minute levels. With the help of different sensors, it is possible to detect temperature, humidity, light variation and soil moisture of agricultural fields. Based on this information farm automation is easily carried out. With these sensors, farmers can monitor the field conditions from a distance using wireless connectivity. The present work is focused on developed robocar operated via mobile phone using Bluetooth protocol. The system with Arduino controller interfaced to sensors for temperature-humidity-soil moisture and ambient light are used. The Android mobile phone with Blynk application is used to collect data. The working distance of remotely operated robocar is about 15m. The results thus obtained are shown in graphical form for each parameter and found to be in good coordination with traditional methods. Thus the system suits for easy monitoring and preventive measures if any required for better yields in agricultural application.

Key Words: Arduino UNO, Sensors, HC-05 Bluetooth Module, Robocar

1. Introduction:

Indian Institute of Teacher Education (IITE), Gandhinagar

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Shreshth Pithadiya ETA&A, Special Issue 10 (148)
 LOW COST AUTOMATIC FIRE ALARM & HAZARD LOCATION
 Volume 16, January 2021

LOW COST AUTOMATIC FIRE ALARM AND HAZARD LOCATION INTIMATING SYSTEM FOR INDUSTRIAL APPLICATION

B. M. Pithadiya*, H. N. Parikh*, H. N. Pandya*, H. N. Kapse*

* IIT Department of Electronics, Suratshree University, Rajkot, Gujarat, India
 * Department of Instrumentation & Control, Institute of Science & Technology for Advanced Studies & Research, Vallabh Vidyanagar, Gujarat, India
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Abstract

Fire is a significant hazard to human life and property. Industrially the alarm device allows for real-time tracking, monitoring and limitation. Once the fire happens, it gives early warning and helps to the fire line. It is versatile security and alarm system which can be used by individuals, corporations or industrial establishments. The concept behind this project is to have a quick, easy, accurate and low-cost fire warning and location-intimating device for users to get support in critical situations. The system can be positioned at any remote location that the consumer can quickly access with the aid of GSM technology. In this it is proposed that NodeMCU acquires signals from different sensors and control to manage communication with properly error. This is carried out by sending SMS immediately to owner in initial stage and fire brigade in critical stage to resolve fire hazard. Different sensors incorporated within system are smoke, fire and flammable gas sensor. It helps to estimate specific threshold values in hazardous condition and alarm the buzzer accordingly. In an high emergency the system sends SMS containing the area and address location to the user / in charge person and fire brigade respectively.

Keywords: Node-MCU (ESP8266), Smoke sensor, Flame sensor, Temperature and Humidity sensors, GSM

1. Introduction

Whenever heat sources and flammable materials share a room, possibility for fire occur. Many industrial sites contain highly hazardous content which can combust or burst into flames unless adequately handled and processed. An industrial fire is a form of industrial disaster which causes enormous damage to its sector. There are different ways in which this hazard is caused such as electrical fire, flammable liquids, compressed gases, hot work, housekeeping practices etc. The work environments in every industry pose unique fire hazard hence there less some general issues culminating in a risk of fire or blast in industrial complexes or manufacturing facilities. Prevention ensures that a minor event or a small fire in a trash does not turn into a catastrophic event which can devastate a business or the lives of workers and a community.

Fire prevention is based on various hazard monitoring systems that include Linear heat detection, Smoke Detection, CO and Combustible Gas detection, Emissions monitoring and many

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Proceedings of International Science Symposium 2022 on Recent Trends in Science and Technology
 22-23rd January, 2022 | Organized by Chitrag College, Rajkot & Sponsored by GURUKRUTI, DIT and OBITM, Gandhinagar
 Physics & Electronics

COMPARISON BETWEEN SOIL MOISTURE SENSING AND MEASUREMENT SYSTEM

Patel Divyang*, Mahaliya Ankita, Kapse H. N.

Department of Instrumentation & Control, Institute of Science & Technology for Advanced Studies & Research (ISTAR) – CVM University, Vallabh Vidyanagar, 388120, Gujarat.
 *kachhiadivyang@gmail.com

ABSTRACT: Agriculture is India's most populous economic sector and plays a vital role in entire socio-economic fabric. Agricultural information if available can change production capacity and helps in monitoring plant's health. The wrong content grower which is known as moisture in soil impacts behavior of soil. It is essential for efficient photosynthesis, transpiration, mineral and nutrient movement throughout the plant. The importance of a proper irrigation schedule for plant growth is must. Hence it has to be monitored in systematic way. In general, the volumetric water content in soil is measured by dry oven method. This work compares soil Dry content measurements with handy assembled systems. Initially Electrical Conductivity (EC-5) sensor node is used to pick up the signals from soil. Based on resistance variation sensor is first calibrated in terms of dry content. The signal is then feed to Arduino Uno module enabling easy interfacing and display on LCD. The other method used is 'NodeMCU' which also has interfacing with sensor node. In this method the interfacing is through wireless protocol using BLYNK application. The purpose of the work is to check and correlate the results by comparing measured data with manual dry oven method. The graphs are plotted as function of water content for soil samples collected from different places. It is observed that NodeMCU system is more precise with dry oven method compare to that of Arduino system. This work regards to find effective handy method / system as the early warning in terms of soil moisture sensing.

INTRODUCTION

Agriculture is India's most populous economic sector and plays a key role in the country's overall socioeconomic fabric. India ranks second in the world for farm output. The basic feature that influences the behavior of soils is its water content. The ratio of the mass of water to the mass of solids present in a soil sample is known as the moisture content of the soil. Classic soil moisture measurement entails estimating moisture from all soil samples using the traditional Dry oven method, which takes one or two days to complete. The old method of measuring moisture dry content in real time will require more time from field sampling. It is a more dependable and low-cost monitoring system that can be set up in a short period of time. There are numerous methods for determining the Dry content of materials using various microcontrollers integrated with sensors. Such approaches are becoming more widely accepted now a day, to measure dry content in soil. Arduino and NodeMCU are among them. NodeMCU uses BLYNK application to display output on android smart phones. This study aims to compare data from two different systems with that of dry oven method. Moisture Content of soil is sensed with electrical conductivity probe (EC-5) and measured with two different systems viz. Arduino and NodeMCU. The measurement and performance shown in plotted graph for comparison.

SYSTEM COMPONENTS

SOIL MOISTURE SENSOR

The volumetric water content in soil is measured by soil moisture sensors. Because direct gravimetric measurement of free soil moisture necessitates the removal, drying, and weighing of a sample. Soil moisture sensors indirectly measure the volumetric water content by different properties of the soil such as electrical resistance, dielectric constant, or neutron interaction. Among this we used EC-5 probe as moisture sensor.

Features:
 For long term use, a tough design is required.
 Response time is quick.

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Seminars / Workshops / Conferences

Presentations (Oral)

1. Remote Monitoring System for Agricultural Application, D.A. Ka.Patel, A. J. Mahaliya, **H.N. Kapse**, National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022), IITE, Gandhinagar, August 27, 2022.
2. Comparison between Soil Moisture Sensing and Measurement System, D.A. Ka.Patel, A. J. Mahaliya, **H.N. Kapse**, International E-Science Symposium-2022 on Recent Trends in Science and Technology, Christ College, Rajkot, January 22-23, 2022.

Presentations (Poster)

1. Modified Screen-Printed Electrode for determination of Copper (II), Through IoT, D.A. Ka. Patel & **H. N. Kapse**, 2nd One day National Conference on Advances in Materials Science: Challenges and Opportunities (AMSCO-2023), M. K. Bhavnagar University, Bhavnagar, March 6, 2023.
2. Monitoring Sensitivity of MQ Series Sensor by Interfacing Arduino as a Base study for Methane Sensor, A. J. Mahaliya, D. A. Ka.Patel & **H. N. Kapse**, National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022), IITE, Gandhinagar, August 27, 2022.
3. Application of Transmission Electron Microscope in the Field of Life Sciences and its Impact on Our Lives, Patel Afif A., **H. N. Kapse**, National Conference on Advances in Physical Sciences for Sustainable Development (NCAPSSD-2022), IITE, Gandhinagar, August 27, 2022

4. Internet of Things for Soil parameters sensing, Divyang Ka. Patel, **H. N. Kapse**, Science Manthan -2022, P.D. Patel Institute of Applied Sciences, Charusat, Changa, March 26, 2022.
5. Methane gas detection by different Satellites - Study, Ankita Mahaliya, **H. N. Kapse**, Science Manthan - 2022, P.D. Patel Institute of Applied Sciences, Charusat, Changa, March 26, 2022.
6. Fabrication methods of methane sensor based on vanadium oxide, A. J. Mahaliya, D. A. Ka.Patel & **H.N. Kapse**, **International E-Science Symposium-2022 on Recent Trends in Science and Technology**, Christ College, Rajkot, January 22-23, 2022.
7. Plant health detecting Robot, Arijit Tripathi, Ruchir Patel & **H.N. Kapse**, **International E-Science Symposium-2022 on Recent Trends in Science and Technology**, Christ College, Rajkot, January 22-23, 2022.

Any Other Remarkable Achievements by Faculty / PhD / MSc Students

1. Received 2nd prize for working model [PG category] on “Energy Harvesting by Solar Tracking” presented by **Shubham Gupta & Vikash Sharma**, Science Manthan -2023, P.D. Patel Institute of Applied Sciences, Charusat, Changa, February 25, 2023.
2. Received 2nd prize for poster presentation [PG category] on “Third Eye for the Blind” presented by **Venkatasainathreddy Kandula**, Science Manthan -2022, P.D. Patel Institute of Applied Sciences, Charusat, Changa, March 26, 2022.
3. Received 2nd prize for oral presentation on “Comparison between Soil Moisture Sensing and Measurement System” presented by **D. A. Ka.Patel** research scholar with coauthors A. J. Mahaliya and H.N. Kapse at International Science Symposium-2022 on Recent Trends in Science and Technology, Christ College, Rajkot, January 22-23, 2022.
4. Received 1st prize for poster presentation on “Fabrication methods of methane sensor based on vanadium oxide, presented by **A. J. Mahaliya** with coauthors D. A. Ka.Patel and H.N. Kapse at International Science Symposium-2022 on Recent Trends in Science and Technology, Christ College, Rajkot, January 22-23, 2022.
5. Received 1st prize for poster presentation [PG category] on “Plant health detecting Robot” presented by **Arijit Tripathi** with coauthors Ruchir Patel & H.N. Kapse, International Science Symposium-2022 on Recent Trends in Science and Technology, Christ College, Rajkot, January 22-23, 2022.
6. Received 3rd prize by **Dr. H. N. Kapse** at National level for Essay writing on “Pollution in our community: Measurement and Physical Insight” in Teaching faculty category organized by Indian Association of Physics Teachers October 31, 2020.

[Received prize from Prof. H.C. Verma, Physicist from IIT Kanpur and Padmshri Awardee at National Seminar in Nov 2021]

7. Received 1st prize by **Dr. H. N. Kapse** for Essay writing on “Pollution in our community (Environment): Measurement and Physical Insight” in Teaching faculty category organized by C. C. Patel Community Science Centre, Sardar Patel University, Vallabh Vidyanagar Supported by GUJCOST, Dept. of Sci. & Tech., Gov. of Gujarat July 31, 2020.

Talk Delivered

1. “Physics of Remote Sensing”, Geospatial Science & Technology, Summer School –organized by GCET-CVM University sponsored by NGP-DST Govt. of India during [26] 18-04-2022 to 8-05-2022.
2. “Introduction to Remote Sensing”, Geospatial Science & Technology, Summer School –organized by GCET- CVM University sponsored by NGP-DST Govt. of India during [26] 18-04-2022 to 8-05-2022.
3. “Remote sensing”, State level Workshop on Space Technology jointly organized by Geoinformatics Dept., ISTAR-CVMU and V. P. & R. P. T. P. Science College, [17] 17-18 February, 2022.

વિધાનગર આઈસ્ટાર કોલેજના રજર વિદ્યાર્થીઓને ૧૨૩ કંપનીઓમાં પ્લેસમેન્ટ

આણંદ, તા. ૧૧

ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમ યુનિવર્સિટીની ઘટક સંસ્થા વિધાનગરની આઈસ્ટાર કોલેજ ખાતે શૈક્ષણિક વર્ષ ૨૦૨૨-૨૩ દરમ્યાન કુલ ૨૪૨ છાત્રોને ગુજરાત તથા અન્ય રાજ્યોની આશરે ૧૨૩ જેટલી વિવિધ કંપનીઓ, ઔદ્યોગિક એકમો તેમજ કન્સલ્ટન્સી જેવી કે આરતી ફલો કંટ્રોલ, નેરોલેક પેઈન્ટ્સ, રોયલ કેસ્ટર, પિરામલ એન્ટરપ્રાઇઝ, ક્વોન્ટમ એશિયા, શિ-કોનીસ ટેકનોલોજીસ, ફુલરટન ઈન્ડિયા કેડિટ, કૃમકો, એડમાર્ક પોલીકોટ્સ અને ફાર્મસન ફાર્મામાં



પ્લેસમેન્ટ મળ્યું હતું.

આ અંતર્ગત પ્લેસમેન્ટમાં રસ ધરાવતા વિદ્યાર્થીઓને વાર્ષિક ધોરણે સંરેરાશ રૂ. ૩ લાખનું અને સર્વાર્થિક રૂ. ૬ લાખનું પેકેજ ઓફર કરવામાં આવ્યું હતું. આ ગૌરવવંતી સિધ્ધિ

બદલ પ્રિન્સિપાલ ડૉ. મહેન્દ્રસિંહ રાજ અને કોલેજ સંયોજક ડૉ. જીગર પટેલે સૌ વિભાગીય વડાઓ તેમજ ઈન્ડસ્ટ્રીઝમાં પસંદગી પામેલ સૌ વિદ્યાર્થીઓને હાર્દિક અભિનંદન પાઠવ્યા હતા.

આઈસ્ટાર કોલેજમાં દ્વારા ધ્યાનશિબિર યોજાઈ



આણંદ, તા. ૩૦

ચારુતર વિદ્યામંડળ સંચાલિત તથા સીવીએમ યુનિવર્સિટીની ઘટક સંસ્થાઓ આઈસ્ટાર, સીકાર્ટ અને આર.એન. પટેલ ઈન્કોવાવા સ્કૂલ ઓફ લો એન્ડ જસ્ટિસ દ્વારા સંયુક્ત ઉપક્રમે તાજેતરમાં આઈસ્ટાર કોલેજમાં શ્રી રામચંદ્ર મિશન સંચાલિત

હાર્ટકુલનેસ દ્વારા ત્રિદિવસીય ધ્યાનશિબિર યોજાઈ હતી. જેમાં ત્રણે સંસ્થાઓના વડાઓ, શૈક્ષણિક અને બિનશૈક્ષણિક કર્મચારીઓએ ભાગ લીધો હતો. વડાઓ ડૉ. રાજેશ પરીખ, ડૉ. મહેન્દ્રસિંહ રાજ અને ડૉ. નિશા નાયરે આભાર માન્યો હતો.

આઈસ્ટારની ઈકો ક્લબ દ્વારા ઓનલાઈન ક્વિઝ યોજાઈ

આણંદ, તા. ૩ સમગ્ર વિશ્વમાં દર વર્ષે ૨ ફેબ્રુઆરી વિશ્વ જલખ્વાવિત દિવસ તરીકે ઉજવાય છે.

જેનો મુખ્ય ઉદ્દેશ જલખ્વાવિત વિસ્તારોની જેવિક તંત્રમાં ઉપયોગીતા, પોષણકડીમાં મહત્વ, પર્યાવરણનું સંરક્ષણ અને તેનું સંવર્ધન જેવા મહત્વના પરિબળો છે. જે સંદર્ભે ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમ

યુનિવર્સિટીની ઘટક સંસ્થા આઈસ્ટાર કોલેજની ઈકો ક્લબ દ્વારા વિશ્વ જલખ્વાવિત દિવસની ઉજવણીના ભાગરૂપે તાજેતરમાં ઓનલાઈન ક્વિઝનું આયોજન કરવામાં આવ્યું હતું.

જેમાં ઈન્ડસ્ટ્રીયલ કેમેસ્ટ્રી ડિપાર્ટમેન્ટના રાજ ઠાકોર પ્રથમ ક્રમાંકે, જીગર પરમાર દ્વિતીય સ્થાને અને તરુણ પટેલ તૃતીય ક્રમાંકે રહ્યા હતા.

આઈસ્ટાર કોલેજમાં ઈકો ક્લબ અને એનએસએસ દ્વારા વિશ્વ પર્યાવરણ દિવસની ઉજવણી



વિધાનગર, તા. ૬ ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમ યુનિવર્સિટીની ઘટક સંસ્થા આઈસ્ટાર કોલેજ ખાતે ઈકો ક્લબ અને એનએસએસના સંયુક્ત ઉપક્રમે વિશ્વ પર્યાવરણ દિવસની ઉજવણી કરવામાં આવી હતી.

જે દરમ્યાન આઈસ્ટાર કોલેજના પ્રિન્સિપાલ ડૉ. મહેન્દ્રસિંહ રાજ તેમજ સંસ્થાના સૌ શૈક્ષણિક અને બિનશૈક્ષણિક કર્મચારીઓએ

વિવિધ પ્રકારના વૃક્ષો જેવા કે સીમડો, પીપળો, નુલમહોર, ઓરસલવી, આસાં પાલવ, દિવસ, સેવન અને બીજી જેવા પર્યાવરણલક્ષી વૃક્ષો વાવ્યા હતા. આઈસ્ટાર સંસ્થા દ્વારા આ અભિગમને આગળ ધપાવવા ઘોષેને વૃક્ષો વાવવા માટે હાકલ કરી હતી. તદુપરાંત, વિશ્વ પર્યાવરણ દિવસની ઉજવણીના ભાગરૂપે આઈસ્ટાર કોલેજ દ્વારા સંસ્થાના સૌ કર્મચારીઓને

ઈકોનૅટલી ભેગનું વિતરણ પણ કરવામાં આવ્યું હતું. વધુમાં, વિદ્યાર્થીઓમાં પર્યાવરણની જાગૃતિનો અભિગમ કેળવવા તે સુતર ઈકો ક્લબ દ્વારા પર્યાવરણની જલખવણી વિષય પર ઓનલાઈન ક્વિઝનું પણ આયોજન કરવામાં આવ્યું હતું. આ ક્વિઝમાં પર્યાવરણ વિભાગનાં મોશી અરોરા પ્રથમ ક્રમાંકે, સીવીના પરમાર દ્વિતીય ક્રમાંકે તેમજ નવીન રાહડે તૃતીય ક્રમાંકે રહ્યાં હતા.

આઈસ્ટાર કોલેજના પર્યાવરણ વિભાગના વિદ્યાર્થીઓની કૃષિ હવામાન વિભાગની મુલાકાત



આણંદ, તા. ૨૫

આઈસ્ટાર કોલેજના પર્યાવરણ વિભાગના અનુસ્નાતક કથાના દ્વિતીય સેમેસ્ટરના વિદ્યાર્થીઓએ આણંદ કૃષિ યુનિવર્સિટીના હવામાન વિભાગની શૈક્ષણિક મુલાકાત તાજેતરમાં કરવામાં આવી હતી. આ મુલાકાત દરમ્યાન કૃષિ હવામાન વિભાગના હડ ડૉ. મનોજ ભુપાલગરિયા, હેક્ટરી ડૉ. બી.આઈ. કરંદે તથા કૃષિ એકમના સમગ્ર સ્ટાફ સભ્યોએ કૃષિ વિભાગની કામગીરી

તેમજ હવામાન વિભાગને લગતા વિવિધ ઉપકરણો અને લકનીકો વિશે વિદ્યાર્થીઓને પુરતું માર્ગદર્શન પુરું પાડ્યું હતું. સૌ વિદ્યાર્થીઓએ વિવિધ યુનિટો જેવા કે માર્ઈકો મીટિયોરોલોજી, ક્લાઈમેટોલોજી, આયો મીટિયો રોલોજી કલ ઈન્સ્ટ્રુમેન્ટ્સ, હાઈકો મીટિયોરોલોજી, વેપર ફોરકાસ્ટિંગ અને એન્ડોમેટ એકમોની મુલાકાત લીધી હતી. મુલાકાત દરમ્યાન પર્યાવરણ વિભાગના હેક્ટરી ડૉ. ધૃતિ

પટેલે સૌ વિદ્યાર્થીઓને હવામાન વિભાગને લગતા વિવિધ ઉપકરણો અને તેની કામગીરી વિશે વિદ્યાર્થીઓને ઝીણવટભરી માહિતી આપી હતી તથા પર્યાવરણમાં તેનું મહત્વ સમજાવ્યું હતું. આ ઈન્ડસ્ટ્રીયલ વિઝિટ દરમ્યાન કૃષિ હવામાન વિભાગ તરફથી પુરતો સાથ અને સહકાર મળવા બદલ આઈસ્ટાર સંસ્થાના ડાયરેક્ટર ડૉ. કિરીટ પટેલ અને કોલેજ સંયોજક ડૉ. જીગર પટેલે કૃષિ યુનિવર્સિટીના સમગ્ર સ્ટાફનો આભાર વ્યક્ત કર્યો હતો.

આઈસ્ટારના પર્યાવરણ વિભાગ દ્વારા ભૂતપૂર્વ વિદ્યાર્થીઓ માટે નવતર પ્રયોગ

આણંદ, તા. ૧૪

આઈસ્ટાર કોલેજના અનુસ્નાતક કથાના પર્યાવરણ વિભાગ દ્વારા તાજેતરમાં ભૂતપૂર્વ વિદ્યાર્થીઓ માટે એક અનોખો પ્રયોગ હાથ ધરવામાં આવ્યો હતો. જેમાં પર્યાવરણ વિભાગના ઈ-પોર્ટલ દ્વારા પ્રત્યેક વિદ્યાર્થીની ઈ-નોંધણી, પ્રવેશ વર્ષ, ઉત્તીર્ણ વર્ષ, હાલમાં જ્યાં કામ કરતા હોય તે કંપનીનું નામ, કંપનીની જગ્યા, કંપનીમાં ધરાવતો હોદ્દો, વાર્ષિક વેતન, વિકેશમાં અભ્યાસક્રમ, રાજ્ય કે દેશમાં અન્ય અભ્યાસક્રમ, સ્પર્ધાત્મક પરીક્ષા દ્વારા સરકારી કે

અર્ધસરકારી ક્ષેત્રે વ્યવસાય વગેરે જેવા મહત્વના પાસાઓ આવરી લેવામાં આવ્યા હતા. આ ઈ-નોંધણીની પ્રક્રિયાને અંતે સૌ વિદ્યાર્થીઓને ઈ-સર્ટિફિકેટ એનાયત કરવામાં આવ્યા હતા. પર્યાવરણ વિભાગ દ્વારા આ નવીનતમ પહેલ કરવા બદલ આઈસ્ટાર સંસ્થાના ડાયરેક્ટર ડૉ. કિરીટ પટેલ અને કોલેજ સંયોજક ડૉ. જીગર પટેલે, હેડ ડૉ. હિરેન સોની, હેક્ટરી ડૉ. ધૃતિ પટેલ અને સૌ એલ્યુમની વિદ્યાર્થીઓને હાર્દિક શુભેચ્છા પાઠવી હતી.

આઈસ્ટારના વિદ્યાર્થીઓ સાયન્સ મંથન પ્રતિયોગિતામાં ઝળક્યા

આણંદ, તા.૨૮
આઈસ્ટાર વિદ્યામંડળ સંચાલિત અને સીવીએમ યુનિવર્સિટીની ઘટક સંસ્થા આઈસ્ટાર કોલેજના અનુસ્નાતક કક્ષાના પર્યાવરણ વિભાગના વિદ્યાર્થીઓએ તાજેતરમાં ૨૫ ફેબ્રુઆરીના રોજ શાસ્ત્રિય યુનિવર્સિટી દ્વારા આયોજિત ૨૦૨૩-૨૪ના પ્રતિયોગિતા સાયન્સ મંથનમાં સાઈનન્ટન, સાયન્ટિફિક પોસ્ટર, માધ્યમિક, સાયન્સ પોએમ, સ્ટેન્ડ-અપ કોમેડી અને વર્ડિંગ મોડેલ જેવી વિવિધ સ્પર્ધાઓમાં ભાગ લીધો હતો. જેમાં દિનિય સેમિસ્ટરના વિદ્યાર્થીઓ જય પટેલ અને ખુશી ભાવસારે આયોજકો દ્વારા ફેરવેલી પાપરોલિવિટ અને સોલાર પેનલ દ્વારા પ્લાસ્ટિક કુચ્છ કચરાનો ઉપયોગ કરીને ઈર્જના ઉત્પાદન માટે 'પ્લાસ્ટિક ટુ પાવર' થીમ આધારિત વર્ડિંગ મોડેલ રજૂ કરીને દિનિય ઈનામ મેળવ્યું હતું.



વધુમાં, ઈન્સ્ટ્રુમેન્ટેશન એન્ડ કંટ્રોલ વિભાગના દિનિય સેમિસ્ટરના વિદ્યાર્થીઓ સુભમ ગુપ્તા અને નિકાસ શર્માએ ફિઝિકલ સાયન્સ કટેગરીમાં એનર્જી હાર્વેસ્ટિંગ આય સોલર ટ્રેકિંગ સિસ્ટમ પર વર્ડિંગ મોડેલ રજૂ કરીને દિનિય ઈનામ મેળવ્યું હતું. આ સિદ્ધિ બદલ આઈસ્ટાર સંસ્થાના ડાયરેક્ટર ડૉ. કિરીટ પટેલ અને કોલેજ સંચોજક ડૉ. જીગર પટેલ કેન્સ્ટ્રી ડૉ. સિદ્ધેશ સોની, ડૉ. યુનિ પટેલ, ડૉ. હિમાંશુ કાપડે અને વિજેતા વિદ્યાર્થીઓને હાર્દિક સુભેચ્છાઓ પાઠવી હતી.

આઈસ્ટાર કોલેજમાં સરસ્વતી પૂજા અને અભિમુખતા કાર્યક્રમ સાથે નવા સત્રની શરૂઆત

આણંદ, તા. ૨૯
આઈસ્ટાર કોલેજના ઈન્ડસ્ટ્રીઅલ કેમેસ્ટ્રી (આઈસ્ટી) વિભાગમાં સરસ્વતી પૂજા અને નવા પ્રવેશોલા વિદ્યાર્થીઓ માટે અભિમુખતા કાર્યક્રમનું આયોજન કરવામાં આવ્યું હતું. આ કાર્યક્રમ અંતર્ગત સરસ્વતી માતાનું વિધિવત પૂજન કર્યા બાદ વિભાગીય વડા ડૉ. રોહિત દવે દ્વારા સંસ્થા પરિચય તથા નવા વિદ્યાર્થીઓનું સ્વાગત કરવામાં આવ્યું હતું. ડૉ. જીગર પટેલ (નાયબ નિયામક SICART) દ્વારા માર્ગદર્શન આપવા આવ્યું હતું. સંસ્થાના ચેરમેન



શુભેચ્છા સહ આશીર્વાદ પાઠવ્યા હતા. મહેન્દ્રરાજ દ્વારા વિદ્યાર્થીઓને હતા.

આઈસ્ટારના વિદ્યાર્થીઓ ઔદ્યોગિક એકમની મુલાકાતે



આણંદ, તા. ૨૨
આઈસ્ટાર - સીવીએમના ઈન્સ્ટ્રુમેન્ટેશન એન્ડ કંટ્રોલ તથા ફિઝિક્સના વિદ્યાર્થીઓ માટે માર્કો ક્લેટ ડેટમ, વિશ્વ ઉદ્યોગનગરની મુલાકાતનું આયોજન કરવામાં આવ્યું હતું. ટેકનીકલ મેનેજર હેતુલ સુધાર અને તેમની ટીમના સભ્યોએ વિવિધ એકમોનું મહત્વ સમજાવ્યું હતું અને પ્રમાણભૂત પદ્ધતિઓનું નિદર્શન પણ કર્યું હતું. આયોજન ડૉ. કિરીટ પટેલ તથા ડૉ. હિમાંશુ કાપડેના માર્ગદર્શન હેઠળ કરવામાં આવ્યું હતું.

આઈસ્ટાર કોલેજના વિદ્યાર્થીઓએ શૈક્ષણિક એકમની મુલાકાત લીધી



આણંદ, તા. ૧૯
આ મુલાકાતમાં વિદ્યાર્થીઓએ મશીન શોપ, ગ્રીટ મેટલ શોપ, વેલ્ડિંગ શોપ, કાર્પન્ટરી શોપ અને ફાઉન્ડ્રી શોપ જેવા ઔદ્યોગિક એકમોની કાર્યરચના સૈદ્ધાંતિક હેતુ, વિવિધ ઉપયોગીતા અને કાર્યક્ષમતા વિગેરે જેવા મહત્વના પાસાઓ વિશે અભ્યાસ કર્યો હતો. બેજુ વર્ગસે વિદ્યાર્થીઓને આ પ્રકારના એકમોમાં કર્મચારીઓને સુરક્ષા, સ્વસ્થતા અને સલામતીના પગલાં વિશે સમજાવ્યું હતું.

આઈસ્ટાર કોલેજ ખાતે સ્કીલ ડેવલપમેન્ટ અંગે વક્તવ્ય યોજાયું

આણંદ, તા. ૨૩
આઈસ્ટાર કોલેજના ઈન્ડસ્ટ્રીઅલ કેમેસ્ટ્રી ડિપાર્ટમેન્ટ દ્વારા તાજેતરમાં સ્કીલ ડેવલપમેન્ટ અંગે વક્તવ્ય યોજાયું હતું. જેમાં વિષય નિષ્ણાત તરીકે જી.એચ. પટેલ ઈન્સ્ટિટ્યૂટ ઓફ મેનેજમેન્ટ, સરદાર પટેલ યુનિવર્સિટી, વલ્લભ વિદ્યાનગર ખાતે કાર્યરત પ્રોફેસર ડૉ. રાજુભાઈ રાઠોડે વિદ્યાર્થીઓને 'ડુઈંગ ઈઝ ન્યુ લર્નિંગ: સ્કીલ્સ ફોર ફ્યુચર' વિષય પર વક્તવ્ય આપ્યું હતું. આ વક્તવ્ય દરમ્યાન તેઓએ જીવનમાં કેવી રીતે કારકિર્દી બનાવવી તેમજ કારકિર્દીમાં અત્યારની પરિસ્થિતિને ધ્યાનમાં રાખીને કેવા પ્રકારની કુશળતા કેળવવી તે વિશે



વિગતવાર માહિતી આપી હતી તેઓએ વધુમાં રસાયણ શાસ્ત્ર તથા અધ્યાપકો દ્વારા ભારે જહેમત ઉઠાવવામાં આવી હતી. સમગ્ર કાર્યક્રમને સફળ બનાવવા બદલ ઈન્ડસ્ટ્રીઅલ કેમેસ્ટ્રી ડિપાર્ટમેન્ટના વિભાગીય વડા ડૉ. રોહિત દવે દ્વારા અધ્યાપકોને અને વિદ્યાર્થીઓને હાર્દિક અભિનંદન પાઠવ્યા હતા તેમજ સ્કીલ ડેવલપમેન્ટનું મહત્વ સમજાવ્યું હતું. આઈસ્ટાર સંસ્થાના પ્રિન્સિપાલ ડૉ. મહેન્દ્રસિંહ રાજ અને કોલેજ સંચોજક ડૉ. જીગર પટેલ દ્વારા વિદ્યાર્થીઓની કારકિર્દીને ઉપયોગી એવા આ પ્રકારના વક્તવ્યો સંસ્થાના અન્ય વિભાગો દ્વારા પણ આયોજિત થાય તેવું સૂચન અને માર્ગદર્શન આપ્યું હતું.

વિદ્યાર્થીઓ પાર્થ પટેલ, ઋત્વી પટેલ તથા અધ્યાપકો દ્વારા ભારે જહેમત ઉઠાવવામાં આવી હતી. સમગ્ર કાર્યક્રમને સફળ બનાવવા બદલ ઈન્ડસ્ટ્રીઅલ કેમેસ્ટ્રી ડિપાર્ટમેન્ટના વિભાગીય વડા ડૉ. રોહિત દવે દ્વારા અધ્યાપકોને અને વિદ્યાર્થીઓને હાર્દિક અભિનંદન પાઠવ્યા હતા તેમજ સ્કીલ ડેવલપમેન્ટનું મહત્વ સમજાવ્યું હતું. આઈસ્ટાર સંસ્થાના પ્રિન્સિપાલ ડૉ. મહેન્દ્રસિંહ રાજ અને કોલેજ સંચોજક ડૉ. જીગર પટેલ દ્વારા વિદ્યાર્થીઓની કારકિર્દીને ઉપયોગી એવા આ પ્રકારના વક્તવ્યો સંસ્થાના અન્ય વિભાગો દ્વારા પણ આયોજિત થાય તેવું સૂચન અને માર્ગદર્શન આપ્યું હતું.

આઈસ્ટાર કોલેજમાં આંતરરાષ્ટ્રીય કક્ષાની CIHA બોર્ડની બેઠક યોજાઈ



આઈસ્ટાર કોલેજમાં આંતરરાષ્ટ્રીય કક્ષાની CIHA બોર્ડની બેઠક યોજાઈ હતી. આ બેઠકમાં આઈસ્ટાર સંસ્થાના આચાર્ય ડૉ. એમ.એમ.રાજે સ્વાગત કર્યું હતું. આગામી વર્ષમાં અલ્પેશ પટેલ, કરણ પટેલ, જેનિલ પંચાલ, મયુર વાઘેલા, ચેત્રા, ગૌરવી અને હર્ષલ મોદી CIHA નું નેતૃત્વ કરશે. ઈઈઈએ એ ભારતભરના વિવિધ ઉદ્યોગોમાં કાર્યરત માનવ સંસાધનોના સ્વાસ્થ્ય અને સલામતી માટે કામ કરતી અગ્રણી સર્વોચ્ચ બિનનફાકારક સંસ્થા છે.

વિદ્યાનગર, તા. ૪ ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમ યુનિવર્સિટીની ઘટક સંસ્થા આઈસ્ટાર કોલેજ ખાતે તાજેતરમાં ઈન્ડસ્ટ્રીયલ હાઈજન એન્ડ સેફ્ટી વિભાગ દ્વારા CIHA બોર્ડની આંતરરાષ્ટ્રીય સ્તરની બેઠક યોજાઈ હતી. જેમાં ઈન્ડરનેશનલ ઓક્યુપેશનલ હાઈજન એસોસિએશન (યુકે) નાં પ્રમુખ અને સ્થાપક તેમજ MIHS પ્રોગ્રામનાં સલાહકાર મહર્ષિ મહેતાનાં વડપણ હેઠળ CIHA

આઈસ્ટાર કોલેજના વિદ્યાર્થીઓને સ્કોલરશીપ એનાયત કરાઈ



આઈસ્ટાર કોલેજના વિદ્યાર્થીઓને સ્કોલરશીપ એનાયત કરવામાં આવી હતી. આ પ્રસંગે આઈસ્ટાર

સંસ્થાના પ્રિન્સિપાલ ડૉ. એમ.એમ. રાજ, RICOH EHS Services LLP, વડોદરાના મેનેજિંગ ડાયરેક્ટર શેફિલ રાણપુરા, MIHS વિભાગના વડા બેજુ વર્ગીસ તેમજ જૂતપૂર્વ વિદ્યાર્થીઓ મયુર વાઘેલા અને કરણ પટેલ પણ હાજર રહ્યા હતા.

નયા પડકાર
ઈન્ટરનેટ ઉપર
વાંચવા માટે ક્લિક કરો
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આઈસ્ટાર કોલેજના વિદ્યાર્થીઓ દ્વારા ઔદ્યોગિક એકમની મુલાકાત



આઈસ્ટાર કોલેજના વિદ્યાર્થીઓ દ્વારા ઔદ્યોગિક એકમની મુલાકાત કરવામાં આવી હતી. આ પ્રસંગે આઈસ્ટાર

આઈસ્ટારના ઓર્ગેનિક કેમેસ્ટ્રી ડિપાર્ટમેન્ટ દ્વારા એક્સપર્ટ ટોકનું આયોજન



આઈસ્ટાર કોલેજના ઓર્ગેનિક કેમેસ્ટ્રી ડિપાર્ટમેન્ટ દ્વારા એક્સપર્ટ ટોકનું આયોજન કરવામાં આવ્યું હતું. જેમાં ૮૦ વિદ્યાર્થીઓએ હાજર રહીને વિષયવસ્તુમાંથી જ્ઞાન મેળવીને લાભ લીધો હતો.

કાર્યક્રમને સફળતાપૂર્વક પાર પાડવા માટે વિભાગના વડા ડૉ. નીરજ પટેલે ભારે જહેમત ઉઠાવી માર્ગદર્શન પૂરું પાડ્યું હતું. કાર્યક્રમને અંતે વિભાગના પ્રાધ્યાપક ડૉ. કિમરી ભટ્ટે તજજ્ઞને મોમેન્ટો આપીને તેઓનો આભાર વ્યક્ત કર્યો હતો.

એન.વી. પાસ અને આઈસ્ટારના સંયુક્ત ઉપક્રમે ડિઝાઇન થીકીંગ પર જુટ કેમ્પ યોજાયો

આઈસ્ટાર કોલેજના ઈનોવેશન અને સ્ટાર્ટઅપ સેલના નેજા હેઠળ સ્ટુડન્ટ ઈનોવેશન પોલિસી અંતર્ગત જુટ કેમ્પનું આયોજન કરવામાં આવ્યું હતું. આ જુટ કેમ્પના ઉદ્દેશ્યે એન.વી. પટેલ કોલેજ ઓફ ઓર એન્ડ એપ્લાઈડ સાયન્સના આચાર્ય ડૉ. બાસુદેવ બશી, એડીઆઈટી કોલેજના પ્રિન્સિપાલ તથા સીવીએમ મયુર આઈએસસી-એસએસઆઈપી ના યુનિવર્સિટી કોર્ડિનેટર વિશાલ સિંઘ તથા આઈસ્ટાર સંસ્થાના ડાયરેક્ટર ડૉ. કિરીટ પટેલ ઉપસ્થિત રહ્યા હતાં. જુટ કેમ્પના સંચાલન માટે અમદાવાદથી પપારેલ મેનેજમેન્ટ એક્સપર્ટ અને એસોસિયેટ પ્રોફેસર ડૉ. રિદિ આંબાવાલે વિવિધ દ્રશ્યો દ્વારા ઈનોવેશનની મૂળભૂત પ્રક્રિયા અને તેમાંથી બિઝનેસ મોડલ કઈ રીતે વિકસી શકે તેના વિવિધ આધારોની વિદ્યાર્થીઓને સમજ આપી હતી. તેમના સહયોગી નુપુર મેહમ



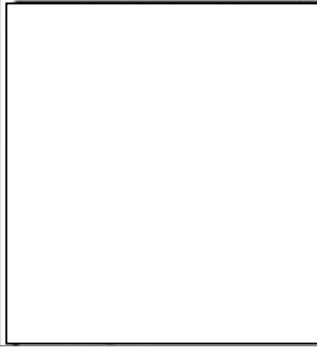
પેઈન પોઈન્ટની ઓળખ દ્વારા લાંબી કિશામાં ડિઝાઇન થીકીંગ કરી સમાજલક્ષી કે આડક લક્ષી ઈનોવેશન કરી રીટર્ન શકે તેની સમજણ આપી હતી. તકુપરાંત બિઝનેસ મોડેલ કેનવાલ્સીંગના માધ્યમથી વિદ્યાર્થીઓને બિઝનેસ મોડેલ કેવલપમેન્ટ વિશે પ્રાયોગિક પ્રતિષ્ઠા આપ્યું હતું. જે અંતર્ગત ૧૫૮ જેટલા વિદ્યાર્થીઓએ તજજ્ઞ સમક્ષ પોતાના બિઝનેસ મોડલ રજૂ કર્યા હતાં. જુટ કેમ્પનું આયોજન એન.વી. પાસ કોલેજના એસ.એસ.આઈ.પી. કોર્ડિનેટર ડૉ. ઉર્વીશ જામવા તથા આઈસ્ટાર કોલેજના એસ.એસ.આઈ.પી. કોર્ડિનેટર ડૉ. રિમાંશુ કાપલે દ્વારા કરવામાં આવ્યું હતું. જેમાં યુનિવર્સિટીના કલેસ્ટર કોર્ડિનેટર ડૉ. કુંડન કુમાર મિશ્રા, આઈસ્ટારના પ્રાધ્યાપક ડૉ. હિરેન સોની રિસર્ચ આધિપ બટ્ટ, અપૂર્વા કડિઆ તથા શ્રેયા પંડયાનો સહયોગ પ્રાપ્ત થયો હતો.

આઈસ્ટાર કોલેજના સેલ દ્વારા સ્પર્ધાત્મક પરીક્ષાઓ વિશે વેબિનાર યોજાયો



વિદ્યાનગર, તા. ૭ ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમયુનિવર્સિટીની પટક સંસ્થા આઈસ્ટાર કોલેજના IQAC સેલ અને ઈન્સ્ટિટ્યુટ ઓફ એડવાન્સ્ડ સ્ટડીઝ (IFAS), પુણેના સંયુક્ત ઉપક્રમ અનુરૂપતાક અભ્યાસક્રમ આદર યોજનારી સ્પર્ધાત્મક પરીક્ષાઓ અને તેની સાર્થક તેષ્ટીઓ કેવી રીતે કરવી તે વિષય પર વેબિનાર યોજાયો હતો. જેમાં મુખ્ય વક્તા IFASના યુનિવ ઝેપીએ વિદ્યાર્થીઓને નેટ, ગેટ, રાજેટ, કુપીએસટી, ગેટ વિગેરે જેવી સ્પર્ધાત્મક પરીક્ષાઓ અને તેની તેષ્ટીઓ વિશે વિતાર આપ્યો હતો.

વિદ્યાનગર, તા. ૭ ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમયુનિવર્સિટીની પટક સંસ્થા આઈસ્ટાર કોલેજના IQAC સેલ અને ઈન્સ્ટિટ્યુટ ઓફ એડવાન્સ્ડ સ્ટડીઝ (IFAS), પુણેના સંયુક્ત ઉપક્રમ અનુરૂપતાક અભ્યાસક્રમ આદર યોજનારી સ્પર્ધાત્મક પરીક્ષાઓ અને તેની સાર્થક તેષ્ટીઓ કેવી રીતે કરવી તે વિષય પર વેબિનાર યોજાયો હતો.



વલ્લભ વિદ્યાનગર સ્થિત ચારુતર વિદ્યામંડળ સંચાલિત અને સીવીએમયુનિવર્સિટીની પટક સંસ્થા આઈસ્ટાર ખાતે સૈદ્ધાંતિક વર્ષ ૨૦૨૨-૨૩ દરમિયાન કુલ ૨૪૨ છાત્રોને ગુજરાત તથા અન્ય રાજ્યોની આસપે ૧૨૩ જેટલી વિવિધ કંપનીઓ, ઓર્ગાઇઝેશન, એકમો તેમજ કન્સલ્ટન્ટની જેવી કે આરની હલો ફૂટેજ, મેડીલેક પેન્ટલ, રોપલ કેસ્ટર, પિરામલ એન્ટરપ્રાઇઝ, ક્વોન્ટમ એશિયા, સિકોનિસ ટેકનોલોજીસ, કુલરટન ઈન્ડિયા કેરિટ, કુપીએ, એડવાર્ડ પોલીકોલેજ અને કાર્મસિન કામમાં પ્લેસમેન્ટ મળ્યું હતું. આ અંતર્ગત પ્લેસમેન્ટમાં રસ પરાવસ વિદ્યાર્થીઓને વાર્ષિક પોરલે સરેરાશ રૂ. ૩.૦ લાખનું અને સર્વિસ પેકેજ રૂ. ૧.૦ લાખનું પેકેજ ઓફર કરવામાં આવ્યું હતું. આઈસ્ટાર સંસ્થાના પ્રિન્સિપાલ ડો. મહેન્દ્રસિંહ રાજના જણાવ્યા મુજબ આઈસ્ટાર સંસ્થા કાન્સલ્ટન્ટનાઈન્સ્ટ્રમન્ટમાં છેલ્લાં ચાર વર્ષથી ગુજરાત રાજ્યની સમગ્ર કોલેજો પેકી ઈન્ટરવે સ્ટાર સિદ્ધિ સાથે પ્રથમ તેમજ માનવ સંસાધન વિકાસ મંત્રાલય, નવી દિલ્લી દ્વારા આયોજિત નેશનલ રેક્રિટિંગ પ્રક્રિયામાં પણ ભારતની તમામ કોલેજો પેકી પ્રથમ ૨૦૦ સંસ્થાઓમાં અમેસર રહીને સ્થાન મેળવેલ છે. આઈસ્ટાર સંસ્થા પાસે વર્તમાન વર્ષ પ્લેસમેન્ટને પ્રાપ્ત્ય અપનાર વિદ્યાર્થીઓ પેકી લગભગ ૮૦ ટકા છાત્રો પ્લેસમેન્ટ મેળવી ચુક્યા છે. સંસ્થાની આ ગૌરવવંતી સિદ્ધિ બદલ પ્રિન્સિપાલ ડો. મહેન્દ્રસિંહ રાજ અને કોલેજ સંયોજક ડો. જગર પટેલે સૌ વિભાગીય વડાઓ તેમજ ઈન્સ્ટ્રીક્ટમાં પસંદગી પામેલ સૌ વિદ્યાર્થીઓને હાર્દિક અભિનંદન પાઠવ્યા હતા.

આઈસ્ટાર કોલેજમાં શૈક્ષણિક સ્ટાફ માટે સ્માર્ટ બોર્ડ ટ્રેનિંગ



આણંદ, તા. ૭ ચારુતર અને આર. એન. પટેલ ઈન્ડોવાલા સ્કૂલ ઓફ લો એન્ડ જસ્ટીસના શૈક્ષણિક સ્ટાફ માટે તાજેતરમાં આઈસ્ટાર કોલેજમાં સેન્સિસ ઈલેક્ટ્રોનિક્સ પ્રા.લી., અમદાવાદ દ્વારા સ્માર્ટ બોર્ડ ટ્રેનિંગ યોજાઈ હતી. કાર્યક્રમની શરૂઆતમાં બંને સંસ્થાઓના વડાઓએ સેન્સિસ ઈલેક્ટ્રોનિક્સના પ્રોડક્ટ ટ્રેનર હાર્દિક હમીરાનીનું સ્વાગત કર્યું હતું.

સ્વાસ્થ્ય પ્રાસંગિક ઉદ્દેશ્યોન કરીને સૌ શિક્ષકગણને આવકાર્યા હતા. આ તાલીમ દરમિયાન હાર્દિક હમીરાનીએ સોફ્ટવેરને વ્યાર્ટ બોર્ડ સીયર્સ, મલ્ટી રાઈટીંગ, એનોટેશન, ફાઈલ સેવિંગ અને ટ્રાન્સકર, ઈમેજ એડિટીંગ, ડોક્યુમેન્ટ વ્યુઅર, પાવર પોઈન્ટ, પીડીએફ, વડે, વેબ પ્રાઉડિંગ, સ્ક્રીન શેરીંગ અને વિડીયો કોન્ફરન્સિંગ જેવા મહત્વના સીયર્સ સમજાવ્યા હતા. વધુમાં તેઓએ સ્માર્ટ બોર્ડ જેવા ઈન્ટરેક્ટિવ વ્યાર્ટ બોર્ડનો ઉપયોગ કરીને વિદ્યાર્થીઓને પાઠ રજૂ કરવા સ્ક્રીન પર લેવન તેમજ ઈરેક વિષયને આધુનિક ટકનીકો દ્વારા વિદ્યાર્થીઓને કેવી રીતે સમજાવવા તે વિશે પણ પ્રકાશ પાડ્યો હતો. તાલીમના સરળ આયોજન બદલ બંને સંસ્થાઓના પ્રિન્સિપાલ ડો. મહેન્દ્રસિંહ રાજ અને ડો. નિશા નાયરે સૌ સહકર્તાઓ અને સહભાગીઓને હાર્દિક અભિનંદન પાઠવ્યા હતા.

આઈસ્ટાર કોલેજના વિદ્યાર્થીઓને ચેરીટેબલ ટ્રસ્ટ દ્વારા શિષ્યવૃત્તિ

આણંદ, તા. ૧૭ ચારુતર વિદ્યામંડળ સંચાલિત આઈસ્ટાર કોલેજના સરકેસ કોર્ટિંગ ટેકનોલજી ડિપાર્ટમેન્ટમાં અભ્યાસ કરતા પાંચ વિદ્યાર્થીઓને એશિયન પેઈન્ટ્સ ચેરીટેબલ ટ્રસ્ટ દ્વારા આર્થિક સહાય રૂપે રૂ. ૫૦૦૦૦ શિષ્યવૃત્તિ પેટે મળ્યા હતા. આ શિષ્યવૃત્તિ ચારુતર વિદ્યામંડળના ચેરમેન અને સીવીએમયુના પ્રેસિડેન્ટ ભીખુભાઈ પટેલના વરફ હસ્તે એનાયત કરવામાં આવી હતી. ઉપરોક્ત સિદ્ધિ બદલ સરકેસ કોર્ટિંગ ટેકનોલોજી વિભાગના હેડ ડો. મયંક પટેલ અને આઈસ્ટાર કોલેજના ડાયરેક્ટર ડો. કિરીટ પટેલે વિદ્યાર્થીઓની મહેનતને બિરદાવી હતી.

આઈસ્ટાર કોલેજમાં એક દિવસીય કાર્યશાળા યોજાઈ



આણંદ, તા. ૮ ચારુતર વિદ્યામંડળ સંચાલિત તથા સીવીએમયુની પટક સંસ્થા આઈસ્ટાર કોલેજના ક્રાઈનોમોર્ફિક વિભાગ અને ઈન્ડોના ડિસ્ટર મેનેજમેન્ટ સપોર્ટ કાર્યક્રમના સંયુક્ત ઉદ્દેશ્યે આઈસ્ટાર કોલેજમાં તાજેતરમાં એક દિવસીય કાર્યશાળા યોજાઈ હતી. આ કાર્યશાળા માટે ક્રાઈનોમોર્ફિક વિભાગના વિભાગીય વડા ડો. કુલાલ સુથારને મુખ્ય સંયોજકતા તથા સ્પોર્સન્સ વિભાગના વિભાગીય વડા ડો. ડિને સોનીને સંયુક્ત સહાયક સંયોજકતા તરીકે ઈન્ડોના ડિસ્ટર મેનેજમેન્ટ સપોર્ટ કાર્યક્રમના સંયુક્ત ઉપક્રમ રૂ. ૨,૪૦,૦૦૦ નું અનુદાન મળેલ હતું.

આ કાર્ય શાળાની શરૂઆતમાં આઈસ્ટાર કોલેજના પ્રિન્સિપાલ ડો. મહેન્દ્રસિંહ રાજ પ્રસંગિક ઉદ્દેશ્યોન કર્યું હતું. કાર્યશાળામાં ઉદ્દેશ્યિત અભિધિ વિશેષ ડો. શશીકાંત શર્મા, રૂપ ડિરેક્ટર, ઈન્ડો, અમદાવાદનાઓએ આઈકોનીક ઈન્ડીયન, રિમોટ સેન્સિંગ એન્ડ ક્રાઈનોમોર્ફિક અને પ્રોજેક્ટ મેનેજર, સરકાર સરોવર નિગમ, ગુજરાત સરકાર, તરફથી ડો. અને સરોવરના ક્રાઈનોમોર્ફિક આધારિત ડિસ્ટર મોડલ વિશે, ગુજરાત સરકારના ગુજરાત ઈન્સ્ટિટ્યુટ ઓફ ડિસ્ટર મેનેજમેન્ટ ડો. સંદીપ પોએકુશ અને તેના વ્યવસ્થાપન અને તથા ઉદ્યોગના પ્રભાવ વિષાઈ ડો. વ્યાલ પોએકુશના સહાયક સમ્પે અવકાશીય સેલેક્ટાઈ આધારિત કાર્યક્રમની સંબંધિત કમ્પીની સંબંધિત સમજાવવામાં આવી હતી. કોલેજના ક્રાઈનોમોર્ફિક વિભાગના વિભાગીય વડા તેમજ મુખ્ય સંયોજકતા ડો. કુલાલ સુથારે મોઘાસા દરમિયાન પૂર અને તે અને અવકાશીય સેલેક્ટાઈ આધારિત અગ્રોવેટી જાણકારી અને આયોજન વિશે માહિતી પુરી પાઈ હતી. ઈન્ડો સાર્થિક કમ્પીની વાંતી માટે ગુજલ આગતવિધી કરવામાં આવી હતી.

SPORTS ACTIVITIES: 2022-23

WEST ZONE TOURNAMENT

Sr. No.	Name of Player	Event	Remarks
1.	Shivangee Machhi	Kabaddi	CVMU team member (West Zone at Amravati, M.H.)
2.	Basudev Patra	Volleyball	CVMU team member (West Zone at Nanded, M.H.)
3.	Aakash Chavda	Cricket	CVMU team member (West Zone at Sikar, R.J.)
4.	Fardinkhan Ghor		

Achievements

1. Shivangee Machhi & team won the Championship in Kabaddi in Anand Khelmahakumbh 2022 as well selected for East zone (Gujarat) for state level.
2. Shivangee Machhi & team secured 1st position in Kabaddi in East zone State level Khelmahakumbh 2022 from Anand.
3. Shivangee Machhi & team won the Championship in Kabaddi in Khelmahakumbh 2022 at Taluka and District level from Anand.

Kabaddi

Shivangee Machhi (M.Sc. (IT)) represented CVMU Kabaddi Team at Amravati, Maharashtra.











Study Skills: A Primer for Students

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Study skills or study strategies are applied to learning. Study skills are an array of skills, which tackle the process of organizing and taking in new information, retaining information, or dealing with assessments. They are discrete techniques that can be learned, usually in a short time, and applied to all or most fields of study. More broadly, any skill, which boosts a person's ability to study, retain, recall information, which assists in, and passing exams can be termed a study skill, and this could include time management and motivational techniques. Some examples are mnemonics, which aid the retention of lists of information; effective reading; concentration techniques; and efficient note taking. Due to the generic nature of study skills, they must, therefore, be distinguished from strategies that are specific to a particular field of study (e.g. music or technology), and from abilities inherent in the student, such as aspects of intelligence or learning styles. It is crucial in this, however, for students to gain initial insight into their habitual approaches to study, so they may better understand the dynamics and personal resistances to learning new techniques.

Memorization

Memorization is the process of committing something to memory, often by rote. The act of memorization is often a deliberate mental process undertaken in order to store information in one's memory for later recall. This information can be experiences, names, appointments, addresses, telephone numbers, lists, stories, poems, pictures, maps, diagrams, facts, music, or other visual, auditory, or tactical information. Memorization may also refer to the process of storing particular data into the memory of a device. One of the most basic approaches to learning any information is simply to repeat it by rote. Typically, this will include reading over notes or textbook and re-writing notes. The weakness of rote learning is that it implies a passive reading and listening style.

REAP Method

A method that is useful during the first interaction with the subject of study is **REAP** method. This method helps students to improve their understanding of the text and bridge the idea with that of the author's. REAP is an acronym for **Read, Encode, Annotate** and **Ponder**.

- **Read:** Reading a section to recognize the idea.
- **Encode:** Paraphrasing the idea from the author's perspective to the student's own words.
- **Annotate:** Annotating the section with critical understanding and other relevant notes.
- **Ponder:** To ponder about what they read, thinking, discussing with others, and reading related materials. Thus, it allows the possibility of elaboration and fulfilment of zone of proximal development.

PQRST Method

A method used to focus on key information, when studying from books uncritically, is the PQRST method. This method prioritizes the information in a way that relates directly to how they will be asked to use that information in an exam. PQRST is an acronym for **P**review, **Q**uestion, **R**ead, **S**ummary, **T**est.

- **Preview:** The student looks at the topic to be learned by glancing over the major headings or the points in the syllabus.
- **Question:** The student formulates questions to be answered following a thorough examination of the topic(s).
- **Read:** The student reads the related material, focusing on the information that best relates to the questions formulated earlier.
- **Summary:** The student summarizes the topic, bringing his or her own understanding of the process. This may include written notes, spider diagrams, flow diagrams, labelled diagrams, mnemonics, or even voice recordings.
- **Test:** The student answers the questions drafted earlier, avoiding adding any questions that might distract or change the subject.

Self-Testing

Self-testing is another effective practice, when preparing for exams or other standardized memory recall situations. Many students prepare for exams by simply rereading textbook passages or materials. However, it is likely that this can create a false sense of understanding because of the increased familiarity that students have with passages that they have reviewed recently or frequently. The term Testing Effect is used to describe this increase in memory performance.

Lecture Notes

Taking notes by using a computer can also deter impactful learning, even when students are using computers solely for the purpose note-taking, and are not attempting to multitask, during lectures or study sessions. This is likely due to shallower processing from students using computers to take notes. Taking notes on a computer often ushers a tendency for students to record lectures verbatim, instead of writing the points of a lecture in their own words.

Flashcards

Flashcards are visual cues on cards. These have numerous uses in teaching and learning but can be used for revision. Students often make their own flashcards, or more detailed index cards – cards designed for filing, often A5 size, on which short summaries are written. Being discrete and separate, they have the advantage of allowing students to re-order them, pick a selection to read over, or choose randomly for self-testing. Software equivalents can be used.

Summary Methods

Summary methods vary depending on the topic, but most involve condensing the large amount of information from a course or book into shorter notes. Often, these notes are then condensed further into key facts.

- **Organized Summaries:** Such as outlines showing keywords and definitions, and relations, usually in a tree structure.

- **Spider Diagrams:** Using spider diagrams or mind maps can be an effective way of linking concepts together. They can be useful for planning essays and essay responses in exams. These tools can give a visual summary of a topic that preserves its logical structure, with lines used to show how different parts link together.
- **Visual Imagery:** Some memory techniques make use of visual memory. One popular memory enhancing technique is the method of loci, a system of visualizing key information in real physical locations e.g. around a room.
- **Diagrams:** They are often underrated tools. They can be used to bring all the information together and provide practice reorganizing what has been learned in order to produce something practical and useful. They can also aid the recall of information learned very quickly, particularly if the student made the diagram while studying the information. Pictures can then be transferred to flashcards that are very effective last-minute revision tools rather than rereading any written material.

Acronyms and Mnemonics

A mnemonic is a method of organizing and memorizing information. There are four main types of mnemonics: (1) Narrative (relying on a story of some kind, or a sequence of real or imagined events); (2) Sonic/Textual (using rhythm or repeated sound, such as rhyme, or memorable textual patterns such as acronyms); (3) Visual (diagrams, mind maps, graphs, images, etc.); and (4) 'Topical' (meaning 'place-dependent', for instance, using features of a familiar room, building or set of landmarks as a way of coding and recalling sequenced facts).

Examination Strategies

The Black-Red-Green (BRG) method helps the student to ensure that every aspect of the question posed has been considered, in both exams and essays. The student underlines relevant parts of the question using three separate colors. **BL**ack denotes '**BL**atant instructions', i.e. something that clearly must be done; a directive or obvious instruction. **RE**d is a **RE**ference Point or **RE**quired input of some kind, usually to do with definitions, terms, cited authors, theory, etc. **GR**een denotes **GR**emlins, which are subtle signals one might easily miss, or a 'GREEN Light' that gives a hint on how to proceed, or where to place the emphasis in answers. Another popular method, while studying, is to use the **PEE** method; **P**oint, **E**vidence and **E**xplain, reason being, this helps the student break down exam questions allowing them to maximize their marks/grade during the exam.

Spacing

Spacing is also called distributed learning by some; helps individuals remember at least as much if not more information for a longer period of time than using only one study skill. Using spacing in addition to other study methods can improve retention and performance on tests. Spacing is especially useful for retaining and recalling new material. The theory of spacing allows students to split that a single long session to a few shorter sessions in a day, if not days apart, instead of cramming all study materials into one long study session that lasts for hours. Studying will not last longer than it would have originally, and one is not working harder but this tool gives the user the ability to remember and recall things for a longer time period. Spacing effect is not only beneficial for memorization, but spaced repetition can also potentially improve classroom learning.

Interleaving and Blocking

Blocking is studying one topic at a time. Interleaving is another technique used to enhance learning and memory; it involves practicing and learning multiple related skills or topics. For example, when training three skills A, B and C: blocking uses the pattern of AAA-BBB-CCC, while interleaving uses the pattern of ABC-ABC-ABC. Research has found that interleaving is superior to blocking in learning skills and studying.

Retrieval and Testing

One of the most efficient methods of learning is trying to retrieve learned information and skills. This could be achieved by leveraging the testing effect including: testing, quizzing, self-testing, problem-solving, active recall, flashcards, practicing the skills, and other.

Time Management, Organization and Lifestyle Changes

Often, improvements to the effectiveness of study may be achieved through changes to things unrelated to the study material itself, such as time-management, boosting motivation and avoiding procrastination, and in improvements to sleep and diet. Time management in study sessions aims to ensure that activities that achieve the greatest benefit are given the greatest focus. A traffic lights system is a simple way of identifying the importance of information, highlighting, or underlining information in colours:

- Green: topics to be studied first; important and also simple
- Amber: topics to be studied next; important but time-consuming
- Red: lowest priority; complex and not vital

This reminds students to start with the things, which will provide the quickest benefit, while 'red' topics are only dealt with, if time allows. The concept is similar to the ABC analysis, commonly used by workers to help prioritize. Also, some websites (such as FlashNotes) can be used for additional study materials and may help improve time management and increase motivation. In addition to time management, sleep is important; getting adequate rest improves memorisation. Students are generally more productive in the morning than the afternoon.

In addition to time management and sleep, emotional state of mind can matter, when a student is studying. If an individual is calm or nervous in class, replicating that emotion can assist in studying. With replicating the emotion, an individual is more likely to recall more information if they are in the same state of mind when in class. This also goes the other direction; if one is upset but normally calm in class, it is much better to wait until they are feeling calmer to study. At the time of the test or class, they will remember more.

Studying Environment

Studying can also be more effective if one changes their environment while studying. For example: the first time studying the material, one can study in a bedroom, the second time one can study outside, and the final time one can study in a coffee shop. The thinking behind this is that as when an individual changes their environment the brain associates different aspects of the learning and gives a stronger hold and additional brain pathways with which to access the information. In this context environment can mean many things; from location, to sounds, to smells, to other stimuli including foods. A simple change in venue can improve the retrieval strength (memory) by 40%. Another change in the environment can be background music; if people study with music playing and they are able to play the same music during test time they will recall more of the information they studied.

SQ3R Method

SQRRR or SQ3R is a reading comprehension method named for its five steps: **S**urvey, **Q**uestion, **R**ead, **R**ecite, and **R**evue. The method offers a more efficient and active approach to reading textbook material. It was created for college students, but is useful for young students as well. Classrooms all over the world have begun using this method to better understand what they are reading.

Survey (S)

The first step, survey, skim, or scan advises that one should resist the temptation to read the book, instead first go through a chapter, and note the headings, sub-headings and other outstanding features, such as figures, tables, marginal information, and summary paragraphs. This survey step typically only takes 3–5 minutes, but it provides an outline or framework for what will be presented. The reader should identify ideas and formulate questions about the content of the chapter.

Question (Q)

Generate questions about the content of the reading. For example, convert headings and sub-headings into questions, and then look for answers in the content of the text. Other more general questions may also be formulated:

- What is this chapter about?
- What question is this chapter trying to answer?
- How does this information help me?

Read (R1)

Use the background work done with "S" and "Q" in order to begin reading actively. This means reading in order to answer the questions raised under "Q". Passive reading, in contrast, results in merely reading without engaging with the study material.

Recite (R2)

The second "R" refers to the part known as "Recite". The reader should try to recite from memory what was learned in the same manner as telling someone else about the information. It is important that the reader use his or her own words in order to formulate and conceptualize the material. Try recalling and identifying major points (heading/subheadings) and answers to questions from the "Q" step. This recital step may be done either in an oral or written format and is related to the benefits of retrieval (testing effect) in boosting long-term memory for the material.

Review (R3)

The final "R" is "Review". Once you reach the end of the passage, review the material by repeating back to yourself what the point of the passage is, using your own words. You may then repeat the process on the second set of questions.

Conductive Paint Turns Walls into Giant Touchscreens

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Tech companies and journalists have been throwing around the term “smart home” for a while now, but it seems like the idea is finally become an actual reality. You can play music, order pizza, turn on the lights, even start the vacuum cleaner by voice command with Alexa. Your thermostat can learn your schedule and temperature preferences to create the perfect ambiance. You can unlock your door and monitor your house from afar with a smart lock.

Soon, you may even be able to use your very walls to, say, turn on the stove or dim the lights. Researchers at Carnegie Mellon and Disney Research have collaborated to design a conductive paint that, when applied to any wall, makes the surface interactive. The smart walls function like giant touchscreens and have the potential to respond to gesture commands. They can track users’ positions in the room and know which electrical appliances are close by and whether they’re being used. The researchers used special conductive paint containing nickel, applied in grid, to create electrodes on the wall. This paint turns the wall into a touchscreen and an electromagnetic sensor. They then painted over the electrodes with regular paint.

The walls look and feel totally ordinary. That’s one of the major benefits. Imagine a future where every home comes equipped with similar smart walls, which residents can feel free to use or simply ignore. Another benefit of using paint to create the smart surface is cost. The team currently estimates the application costs at about \$20 per square meter, but hope to bring the price down with further fine tuning. The walls could potentially serve as an interface for controlling home appliances that would be cheaper, more efficient and less obtrusive than current smart home setups. Imagine the walls targeting the needs and preferences of different residents, identified perhaps by their smart watches. It could turn on the lights just the way you like, play your roommate’s favourite tunes when she walks into the room, notify family members if grandma appears to have fallen. Besides reducing the cost of the paint, scientists are aiming to make the walls capable of detecting appliances at further distances. Right now, the walls have a range of 3 meters, which is fine for wall-mounted TVs or a lamp that sits by the couch. But they hope to expand the range to 10 or even 20 meters, making the walls capable of sensing electronics in the middle of very large rooms.

From automobiles to household appliances and even our train tickets, the use of electronics in even the most mundane aspects of our life has given us a great deal of convenience. This “integration” of electronics to everyday objects is the main objective behind the development of conductive paint. The possibility of conductive materials being delivered in a medium as flexible as paint can change our entire idea of what circuits are and how they can be used. What exactly is conductive paint and how does it work?

What is conductive paint?

As its name implies, conductive paint is a type of paint that is electrically conductive. This involves the combination of conductive particles, such as metals or graphite, and a liquid medium. The particles in



question need to be ultra-fine to retain the characteristic wetting and binding of regular paint. Current is delivered through conductive paint by jumping from one nanoparticle to another. This means that these particles need to be packed very closely together to provide bridges for the transmittal of charges – like a pearl necklace. This means that there is an element of randomness involved in determining how well an application of conductive paint is.

If you've ever tried searching for conductive paint, you may find that the terms 'conductive paint' and 'conductive ink' are used interchangeably. This is because they are essentially the same thing with minor differences in how they are used and their suitable applications. By standard conventions, paint is used in industrial applications in a manner where it sits on top of the substrate. It is often applied by spraying or brushing. In contrast, ink is printed onto the substrate in a manner where it penetrates the surface of the substrate, like in paper or fabric. In many ways, the distinction between paints and inks has always been ambiguous. If you're trying to pick between conductive paint and conductive ink, what often matters is the substrate to which you are going to apply it to and the manner of application. Conductive ink is more suited to small-scale applications, while large projects are likely more appropriate applications for conductive paint.

Types of conductive paint

There are a lot of conductive paint products out there, but we will make a distinction between two types based on the different conductive materials used in each. Basically, the current is conducted through either metal particles or graphite particles.

Metal-based conductive paint

The more common type of conductive paint contains nanoparticles of metal in a solvent-based medium. The most common types of metals used for this purpose are either copper or silver, both of which are highly conductive and malleable or "soft" metals. The advantage of using metal particles as a base for conductive paint is that they are capable of supporting higher current transmission. This is because of the inherent conductivity of metals, particularly those that are typically used in conductive paint. For high load applications, metal-based conductive paint is a more reliable option. Metals do not come without drawbacks. They are prone to oxidation, so an application of metal conductive paint may have a limited shelf life. They also typically require a solvent-based medium to simulate the characteristics of paint, which poses hazards in terms of flammability and ventilation. Also some of the more valuable metals are hard to source and subject to fluctuations in market price. This doesn't matter much if you're just looking for conductive paint for one-time use, but it's something you may want to consider if you plan on using conductive paint in a recurring manner.

Carbon-based conductive paint

An alternative to carbon is graphite, a crystalline form of carbon. Graphite has long been used as an alternative conductor to metals because of its abundance in nature, resistance to oxidation, and better heat stability. As a material for conductive paint, graphite is merely ground down to ultra-fine particles and mixed with a fluid medium. Since graphite does not oxidize when exposed to moisture, it allows for the use of a water-based medium to create conductive paint. This makes paint that is solvent-free and less toxic. Graphite-based conductive paint will dry at room temperature and requires no curing. However, it also means that graphite-based conductive paint applications are not waterproof, although this can be remedied by the application of acrylic varnish or any waterproof coating. There are also certain materials, such as some plastics, that are hydrophobic in nature and will resist binding with water-based paint. The biggest drawback to choosing graphite over metals as the conductive medium is the inherently lower capacity of graphite to transmit current. Unlike the ion migration phenomenon in metals, graphite relies on charge localization for its conductive characteristics. This is a much slower mechanism for transmitting a charge, which severely limits the extent of application of a graphite-based conductive paint.

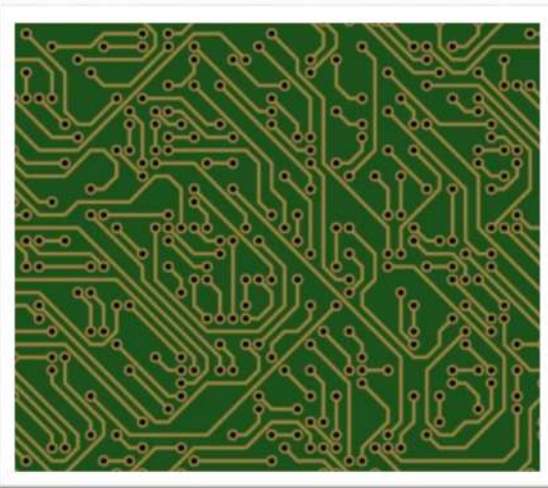
Pros and cons of conductive paint

Conductive paint may be revolutionary in terms of versatility and ease of use, but all industry experts agree that they aren't bound to replace solid conductors anytime soon. Here are some of the strong points of conductive paint, as well as its major limitations.

Flexible medium

Conductive paint has made it possible to integrate electrical circuits in a medium that would otherwise have been impossible using old conductor technology. This includes flexible media like paper and fabric.

This flexibility also extends to how conductive paint is applied. It can be painted on manually with brushed, sprayed, screen printed, or printed using inkjet technology. This versatility in application makes conductive paint a viable component for automated manufacturing processes.



Easy to use

Not everyone has the technical knowhow to build circuits out of wires, but even kids know how to use paint or ink. This unparalleled ease of use has made conductive paint a valuable tool in education about electronics and circuits, as well as a tool for quick repairs.

Conductive paint is a technology that has been around for a long time, but its adaptability has been slow to grow. The main hurdle to its acceptance is the fact that it's seeking to replace traditional electric circuitry – a long-established technology that we've come

to be highly dependent on. Thus, the use of conductive paint has been mostly restricted to novel applications and those that are deemed to be non-critical. Here are some of the ways in which conductive paint is currently being used:



Educational tool

Education about electronics has the potential to be revolutionized by the use of conductive paint. Instead of using wires and breadboards, students can simply draw circuits of paper to connect electrical components with a power source. This greatly streamlines the process of learning about circuits and makes it more fun and accessible for young students. More so, circuits made from conductive paint don't even have to look like circuits. This gives students some artistic liberty in how they choose to design their circuits. RFID tags

Conductive paint has made it possible to integrate electronic circuitry in objects as light as paper. RFID tags such as those made for train tickets and access cards typically have circuitry made with conductive paint. This may not be immediately visible as they can be embedded inside the cards, despite their remarkably thin form factors.

RFID tags are some of the finest examples of the utility of conductive paint, integrating electronics in objects that were deemed to be impossible before.

Cold soldering

[Soldering](#) a process by which electrical components are joined together by solder or a piece of molten filler metal. Aside from joining them physically, a solder also provides a conductive bridge. However, old-fashioned soldering requires exposure of filler metal to high temperatures. This is a somewhat delicate process that can be dangerous to someone inexperienced. Cold soldering using conductive paint eliminates the complexity and hazards of hot soldering.

With cold soldering, you can create conductive bridges across electrical components in just a few minutes with no technical skills, and without the use of any special equipment.

Quick repairs

Conductive paint can be used as a tool for making quick repairs in damaged electric circuitry, especially if you have neither the time nor the materials to come up with a more permanent repair. Take note that conductive paint should not be used as a replacement for actual electrical wires or other electrical components. However, they should work well enough for when you are in a tight spot, like when your car breaks down or a kitchen appliance becomes damaged during the weekend.

How to make DIY conductive paint

As you'd expect, conductive paint is a bit more expensive than regular paint. There are a lot of DIY tutorials online on how you can make your own conductive paint. For almost all these tutorials, the conductor of choice was graphite powder. This is much easier to buy than metal nanoparticles. You will then need to use a non-conductive liquid vehicle to suspend the powder and spread it densely and uniformly. There are several different options for this. You can stick to standard white glue, but some have gotten more success by using acrylic paint. In either case, you want to attain a consistency that is very thick but can still be applied in thin and consistent coats. Making your own conductive paint is a lot cheaper than buying. With a white glue vehicle, you can make white glue that is about ten to twenty times less expensive than those that are commercially available. The quality of DIY glue is comparable to store-bought ones, as long as you are using the same conductive material.

Conclusion

Conductive paint remains a somewhat novel material with potential that is yet to be explored. The beauty of conductive paint is that it's very accessible – it's cheap, easy to use, and you can even make your own batch out of some store-bought materials. It's still massively limited in terms of its conductive properties, though. While conductive paint isn't going to replace actual solid conductors anytime soon, it's not a far-fetched thought that it could have some niche applications. Finding this niche is perhaps the most immediate challenge that this technology faces.

Shape Memory Alloy

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In light of the paradigm shift in design created by smart materials and structures, which primarily affected the fields of structural engineering, robotics, and aerospace, there is an increasing need for highly efficient and lightweight adaptable systems. Shape memory alloys (SMA), which are part of the class of smart materials, have numerous uses as adaptive structure components because of their high specific actuation energy, massive actuation strain, and high recovery stress. When exposed to mechanical stress or a temperature shift, a shape memory alloy goes through a phase transformation. The SMA "remembers" its former shape and resumes it when the circumstances return to normal. Due to its shape memory effect (SME) and extreme elasticity, SMAs are a great choice for composite materials and intelligent composite structures.

Austenite and martensite are the two crystal forms used in shape memory alloy (SMA) materials. At higher temperatures, the SMA is composed of austenite, while at lower temperatures, it is composed of martensite. This "memory" behaviour results from the transition from austenite to martensite, or vice versa. The shape deformation and shape recovery of SME occur at low temperatures (martensite phase) and high temperatures, respectively (austenite phase).

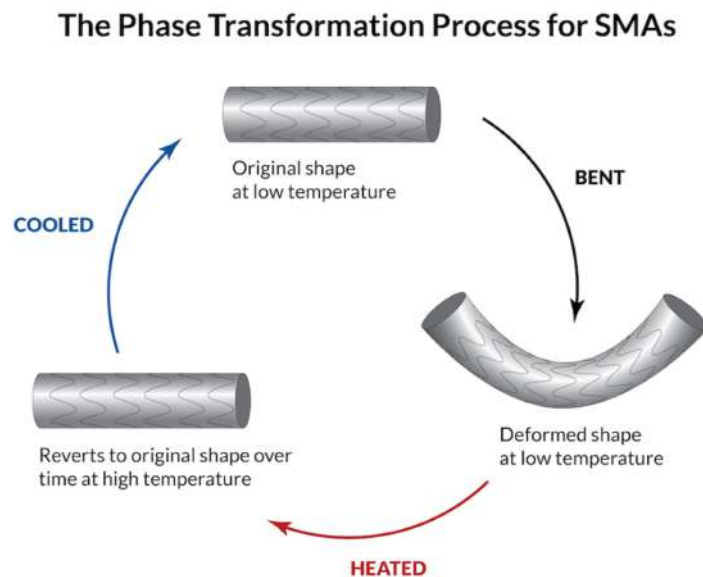


Figure 1: General process of phase transformation process

Looking ahead, the development of shape memory materials has lately progressed beyond alloys. For a variety of commercial applications, shape memory polymers and other variants of shape memory materials have been created and even released.

There are about 20 different types of SMA materials, but the alloys made of nickel-titanium (NiTiNOL), copper (Cu), copper-aluminum-nickel (CuAlNi), copper-zinc-aluminum (CuZnAl), and iron (Fe) are now the ones that have been the subject of the most research.

Due to its outstanding performance, superior ductility, corrosion resistance, high tensile strength, high output force-to-weight ratio, and biocompatibility, NiTiNOL, a nickel-titanium alloy created by the Naval Ordnance Laboratory in White Oak, Maryland (USA), has become widely used in commercial uses. Applications for SMAs have been found throughout a wide range of sectors. In addition to the previously stated flexible eyeglass frames, they might be utilised in bioengineering projects like:

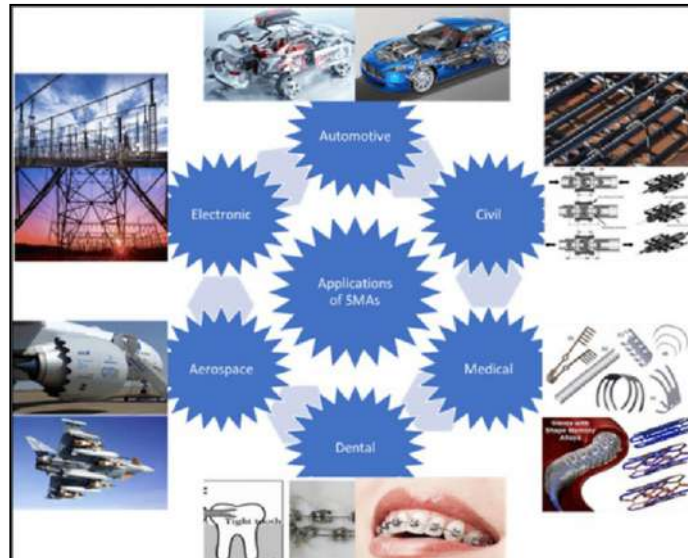


Figure 2: Applications overview of shape memory alloys

Dental braces (arch wires): Memory alloys maintain their shape due to their constant temperature, and due to their extreme elasticity, the wires continue to hold their original form even after stress has been imposed and withdrawn.

Mending broken bones using metal plates: Attached to both ends of the shattered bone, the alloy plate has a memory transfer temperature that is nearly equal to body temperature. The plate wants to contract due to body heat in order to maintain its original shape, which applies pressure to the shattered bone where it was fractured. The plate keeps applying the compressive strain even after the bone has healed, helping to strengthen the bone during recovery. Given the high amount of super-elasticity, memory metals also applicable to hip replacements.

Reinforcement for Arteries and Veins: An alloy tube is crushed and put into the obstructed veins to treat blocked blood arteries. The memory metal expands to unclog the blocked arteries because it has a memory transfer temperature that is close to body heat. They are applied in situations where hot fluids flow through them as wires and tubes. The fact that these materials can maintain their shape even in a warm atmosphere makes them perfect.

Anti-scalding protection: System for choosing and controlling the temperature in showers and baths. In order to prevent scalding, memory metals can be created to control the flow of water by reacting at various temperatures. When the water has cooled to a specific degree, memory metals will also permit the water flow to continue.

Fire security and Protection systems: In order to prevent catastrophic accidents, lines that transport extremely combustible and hazardous fluids and gases need to be tightly controlled. Memory metals can be used to reprogram systems such that they promptly shut down if the temperature rises. This can significantly reduce catastrophic issues in the petrochemical, semiconductor, pharmaceutical, and major oil and gas boiler sectors.

Helicopter blades: Helicopter blade performance is based on vibration; by using memory metals in micro processing control tabs for the blades' trailing ends, pilots can fly with more accuracy.

Eyeglass Frames: In certain advertising, eyeglass manufacturers show off frames that can be bent back and forth while maintaining their shape. These frames exhibit extreme elasticity and are manufactured from memory metals as well.

SMA's are also used in the field of civil engineering. They have, for instance, been applied to bridge construction. SMA's have the ability to attenuate vibrations, allowing them to adjust the natural frequency of varied constructions. Launch vehicles and jet engines have both employed this vibration dampening property. Additionally, more recent lightweight alloys have been found. One such alloy is magnesium-scandium, which has a number of possible uses in the aerospace industry as well as the medical sector for biodegradable self-expanding stents.

Due to their shape-changing capabilities, SMA's can be utilised as actuators and may find usage in spacecraft and aeroplanes because they are lighter and more energy-efficient than heavy mechanical actuators. NASA showed off a nickel-titanium SMA actuator earlier this year that is used to fold the wings' outer sections while the aircraft is in flight. Energy use is decreased by the plane's wings changing angle in response to wind and turbulence.

SMA's could also be used to retrofit buildings that weren't built with seismic conditions in mind. SMA's capacity for huge deformations with hardly any residual strain as well as their capacity for reversible shape change with hysteresis are both utilised in this case. Pre-stressed SMA wires can be used to retrofit a beam column joint with reinforced concrete. In comparison to wires that are stressed only when the concrete begins to expand, this greatly increases their shear strength and axial loading capacity.

In a recent finding, scientists raised the high temperature SMA's operating temperatures from about 400 °C to nearly 700 °C. By mixing four or more metals to create shape memory alloys, they were able to do this. SMA's with high operating temperatures may be used, for example, to reduce airport noise from approaching planes. Depending on the temperatures experienced during the various flight stages, the SMA's may automatically alter the size of the exhaust nozzles. SMA's have a wide range of existing applications, but more recent alloys are being found with various properties, and it appears that there may be even more uses for these materials in the future.

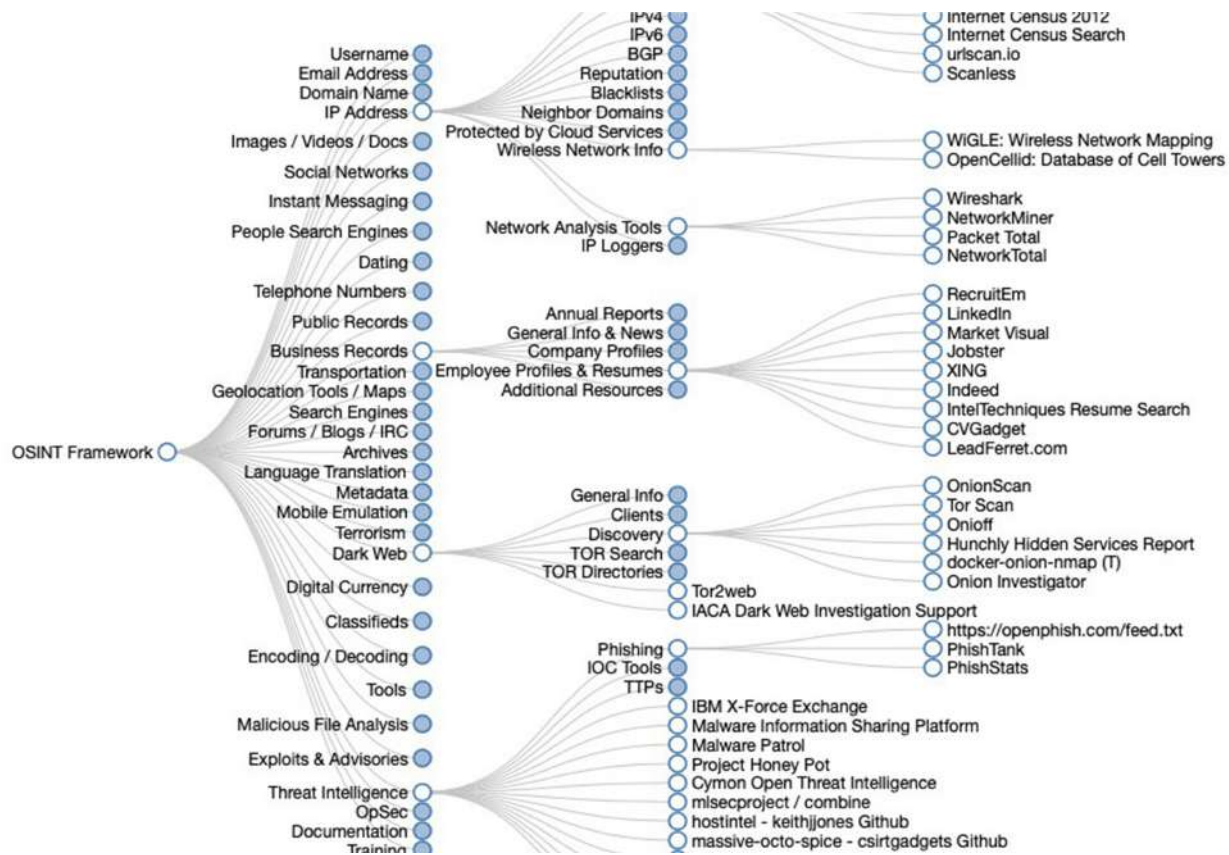
Unveiling the Power of OSINT: A Framework for Ethical Hackers

Adarsh Sharma & Aditi Parmar

Computer Science Department

Introduction

Open Source Intelligence (OSINT) has emerged as a powerful and indispensable technique in the realm of ethical hacking. It involves the gathering and analysis of data from publicly accessible sources to gain insights, evaluate security vulnerabilities, and comprehend potential dangers. Ethical hackers, also known as white hat hackers, use OSINT as a crucial part of their reconnaissance process to gather information without compromising the privacy and security of individuals or organizations. This article delves into the significance of OSINT in ethical hacking, its role in identifying potential threats, complementing other hacking techniques, ethical considerations, and its future in the ever-evolving landscape of cybersecurity.



Understanding the OSINT Framework

The OSINT framework for ethical hackers consists of several key components that guide the process of gathering, analyzing, and interpreting data:

Goals: The first step in the OSINT process is defining clear goals and objectives. Ethical hackers determine the specific information they need to collect, the potential security risks they want to assess, and the scope of their investigation. Establishing well-defined goals ensures that the OSINT efforts are focused and productive.

Resource Analysis: In this phase, ethical hackers identify and analyze relevant and useful sources of information. These sources can include social media platforms, public databases, websites, forums, and

more. By understanding where to look for valuable data, hackers can efficiently gather the information they need.

Data Collection: Ethical hackers employ specialized tools and techniques to collect data from the identified sources. It is essential to ensure that data collection is conducted responsibly and within legal and ethical boundaries to protect the privacy of individuals and organizations.

Data Validation: Verifying the accuracy and reliability of the collected data is critical. Ethical hackers cross-reference information from multiple sources to ensure its authenticity. Reliable data forms the foundation for making informed decisions and drawing accurate conclusions.

Data Analysis: Once the data is collected, ethical hackers analyze it to extract useful insights. This involves interpreting the data in the context of their objectives, identifying patterns, and investigating potential security risks or vulnerabilities. Data analysis is a crucial step in understanding an organization's digital footprint and potential weaknesses.

Data Visualization: To effectively communicate their findings, ethical hackers use data visualization techniques. Charts, graphs, and infographics help convey complex information in a more accessible and visually appealing manner. Visualization enhances the understanding of the data and aids in presenting insights to relevant stakeholders.

The Role of OSINT in Ethical Hacking

Identifying Potential Threats: OSINT plays a significant role in recognizing possible threats to an organization's cybersecurity. By offering insights into an organization's online presence and security posture from an outside perspective, OSINT enables ethical hackers to identify potential vulnerabilities and areas that malicious actors may exploit. Understanding the possible threats helps security experts develop proactive defense measures to safeguard against potential attacks.

Complementing Other Hacking Techniques: While OSINT serves as a crucial initial step in ethical hacking, it is often combined with other hacking methods such as penetration testing, social engineering, and vulnerability assessment. The knowledge base provided by OSINT enables ethical hackers to prioritize their efforts and tasks more effectively. Integrating OSINT with other techniques offers a comprehensive approach to identifying security concerns, providing a thorough evaluation of an organization's cybersecurity environment.

Success Stories in OSINT Security Research: Several high-profile security breaches have been uncovered and prevented through the application of OSINT techniques by ethical hackers. For instance, in 2013, the Target data breach exposed millions of customer records. Ethical hackers investigating the breach through OSINT discovered that attackers gained initial access through a third-party HVAC contractor, highlighting the importance of securing third-party connections.

Ethical Considerations in OSINT for Hacking Purposes

Ethics and responsibility are paramount in the field of ethical hacking. The purpose of OSINT in ethical hacking is to enhance security and protect organizations from potential threats, rather than causing harm or violating individual rights. Ethical hackers must always conduct their activities with the clear consent of the organization they are testing and adhere to legal constraints.

Furthermore, information gathered through OSINT must be handled professionally and treated with utmost secrecy to prevent unauthorized sharing or misuse. Ethical hackers should prioritize privacy and avoid crossing ethical boundaries while using OSINT to ensure the integrity and positive impact of their practices.

Key OSINT Tools and Platforms for Ethical Hackers

Maltego: A powerful OSINT tool that gathers information about individuals, organizations, and infrastructure. It transforms open data into graphical representations, enabling link analysis and visualization of data relationships.

Shodan: A unique search engine designed to find Internet of Things (IoT) devices, servers, and other connected devices. Shodan provides detailed information about these devices, including open ports, banners, and vulnerabilities.

theHarvester: A tool that collects email addresses, subdomains, and other relevant information from various sources such as search engines and social media platforms.

SpiderFoot: An open-source OSINT automation tool that collects data from multiple sources, including DNS records, WHOIS records, IP addresses, and social media platforms. SpiderFoot automates the data collection process, saving time and effort for ethical hackers.

The future of OSINT in ethical hacking is promising, driven by technological advances and emerging trends in cybersecurity:

Technological Advances: As technology evolves, OSINT tools are expected to become smarter and more capable of collecting and analyzing big data from numerous sources. Improvements in data processing techniques and machine learning will enhance the accuracy and efficiency of OSINT investigations.

Integration with AI and Automation: Ethical hackers are likely to integrate OSINT with artificial intelligence and automation, enabling faster threat detection and more effective response to emerging cyber threats.

Deep and Dark Web Analytics: OSINT tools are likely to be optimized for analyzing the deep and dark web, providing ethical hackers with valuable insights into criminal activities, terrorism, and illicit trade. This enhanced understanding can further improve cybersecurity defenses.

Privacy and Ethical Concerns: Ethical hackers will need to address growing concerns regarding data privacy and ethical boundaries while conducting OSINT investigations. Striking a balance between data collection for security purposes and respecting individual privacy will be crucial in maintaining public trust.

Collaboration and Data Sharing: The future of OSINT may involve increased collaboration and data sharing among ethical hackers, researchers, and agencies. Crowdsourced OSINT data can lead to more insightful and relevant cybersecurity interventions.

Conclusion

OSINT continues to be a powerful and indispensable tool for ethical hackers in the realm of cybersecurity. Its ability to gather and analyze data from publicly accessible sources enables security experts to identify potential vulnerabilities and threats, helping organizations strengthen their defenses proactively. The OSINT framework provides ethical hackers with a structured approach to data collection, analysis, and visualization, ensuring responsible and effective use of the gathered information. As technology advances, the integration of AI and automation is expected to enhance OSINT capabilities, further improving the effectiveness of ethical hacking practices. To ensure the future impact and integrity of OSINT, ethical hackers must uphold ethical standards, prioritize privacy, and stay vigilant against emerging threats. With responsible use and constant innovation, OSINT will continue to be a vital asset in the ongoing battle against cyber threats, safeguarding the digital world for organizations and individuals alike.

Chat GPT: Revolutionizing Conversational AI

Bhoomi Prajapati & Janki Velani

Computer Science Department

Chat GPT, powered by OpenAI's groundbreaking GPT-3.5 architecture, is a cutting-edge conversational AI model that has revolutionized the way we interact with AI systems. With its impressive language processing capabilities and vast knowledge base, Chat GPT has set new benchmarks in natural language understanding and generation.

Unlike traditional chatbots that rely on rule-based systems or limited pre-defined responses, Chat GPT employs a deep learning approach that enables it to understand and generate human-like responses. Trained on a diverse range of internet text, Chat GPT has acquired an extensive understanding of various topics and can provide insightful answers to a wide array of questions.

One of the key strengths of Chat GPT is its ability to engage in dynamic and contextually coherent conversations. It can maintain context over multiple turns and respond appropriately to nuanced prompts. Whether it's discussing current events, explaining complex concepts, or even indulging in casual banter, Chat GPT excels at delivering meaningful and contextually relevant responses.

Moreover, Chat GPT is designed to continuously learn and improve over time. By analyzing user interactions and feedback, the model can refine its responses, addressing any biases or inaccuracies that may arise. OpenAI has also implemented safety measures to ensure responsible AI usage, allowing users to provide feedback on problematic outputs and further enhancing the model's performance.

The applications of Chat GPT are vast and varied. From customer support and virtual assistants to language tutoring and content generation, Chat GPT has the potential to transform numerous industries. Its conversational prowess and natural language understanding have opened up new possibilities for human-machine interactions.

In conclusion, Chat GPT represents a major leap forward in conversational AI. Its ability to understand and generate human-like responses has paved the way for more engaging and productive interactions with AI systems. With ongoing improvements and responsible usage, Chat GPT holds tremendous promise for shaping the future of communication and problem-solving.

UI/UX

Priyanka Sharma & Krishi Patel

Computer Science Department

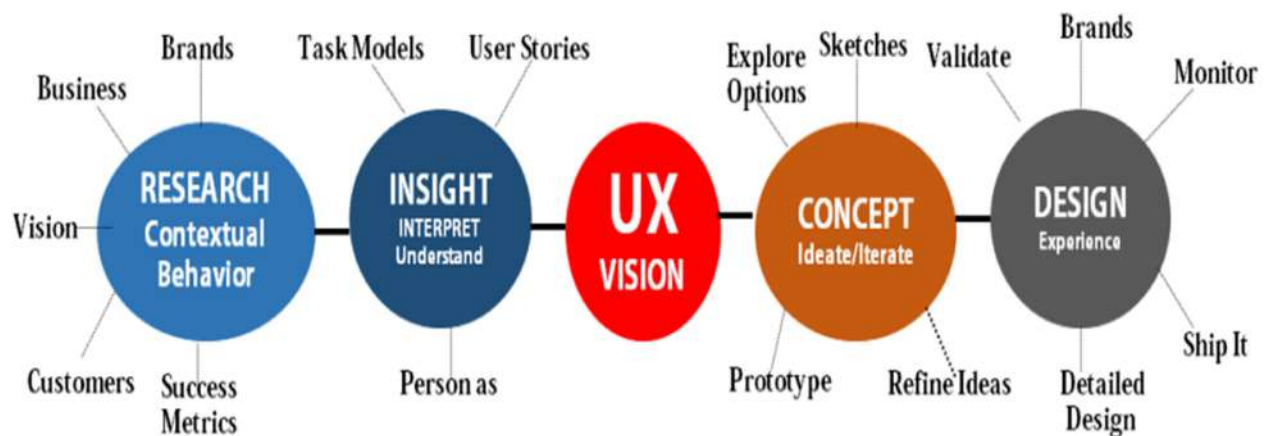
UI (User Interface):

UI is like the "look and feel" of the application - it's the design that users interact with when they use a website, mobile app, or any digital interface. Good UI design makes the user experience more enjoyable and efficient.

UX (User Experience):

UX, short for User Experience, refers to the overall experience a user has while interacting with a digital product or service. It encompasses not only the visual design (UI) but also the usability, accessibility, and overall satisfaction a user feels while using the product.

Changes in UI/UX Design Feature:



By segmenting by layer from the strategy of determining the user's purpose with the UX interface to cognitive and sensory attributes that cause user behavior to the surface, Jesse James Garrett showed the framework of UX by dividing it into Strategy, Scope, Structure, Skeleton, and Surface.

If you show some action plan, it empathizes first. This is to understand the users.

The second is to define the goal as a project or business by defining the problem. The next step, Ideate is to find ideas and solutions.

The next step is to finalize UI/UX by reviewing and making decisions as a final step.

Conclusion:

In summary, UI is about the visual design and layout of a digital product, while UX is about the overall experience and usability that product offers to the user. Both UI and UX are essential for creating successful and user-friendly digital experiences, and they work together to make products that are not only beautiful but also intuitive and enjoyable to use.

From Siri to Smart Homes: Exploring the Influence of AI in Our Daily Lives

Aditi Suthar

Computer Science Department

What is AI?

Artificial Intelligence (AI) is a rapidly evolving field of computer science that aims to create intelligent machines capable of performing tasks requiring human-like intelligence. AI systems are designed to analyze data, recognize patterns, and make informed decisions, simulating human thinking processes. The ultimate goal is to develop machines that can learn, adapt, and function with minimal human intervention.

Latest Trend in AI: One of the latest trends in AI is the integration of AI technology with everyday devices and services. Voice assistants like Siri, Alexa, and Google Assistant exemplify this trend by understanding and responding to human commands, providing information, and executing various tasks. This integration has made AI-powered virtual assistants commonplace in many households, simplifying daily tasks, answering questions, and controlling smart home devices, all with natural language interactions.

Another significant trend is the application of AI in automation. Various industries, such as manufacturing, logistics, and customer service, have embraced AI-driven automation technologies to streamline processes, enhance efficiency, and reduce human errors. Robots and AI-powered systems are transforming traditional workflows and reshaping the way we work.

AI in everyday life

Recommendation: AI's impact extends to various aspects of our daily lives, even for individuals without technical backgrounds. For instance, online platforms use AI algorithms to provide personalized recommendations to users. E-commerce websites like Amazon use AI to analyze browsing history and purchase behavior, suggesting products that match users' interests. Similarly, streaming services like Netflix employ AI to recommend movies and TV shows based on viewers' preferences, enhancing their entertainment experience.

Finance Management: AI-powered financial apps and tools are helping individuals manage their personal finances effectively. These apps analyze spending patterns, offer budgeting recommendations, and provide insights to help users make informed financial decisions. AI is making personal finance management more accessible and convenient.

Language Translation: Language translation is another area where AI has made a significant impact. AI-powered language translation tools facilitate communication across different languages, removing language barriers and enabling global connections and collaborations.

Customer support: In customer support, businesses are increasingly using AI-powered chatbots to provide quick and efficient assistance. These chatbots can understand customer inquiries, provide relevant information, and help resolve common issues, saving time for both customers and businesses.

Automation and efficiency: AI-driven automation is enhancing efficiency and productivity in various areas of life. For example, AI-powered email filters automatically categorize and prioritize messages, reducing the effort required to manage inboxes effectively. In smart homes, AI algorithms enable devices like thermostats, lighting systems, and security cameras to adapt to user preferences, making homes more energy-efficient and comfortable.

Transportation: AI has also revolutionized transportation and navigation. AI-based navigation apps, such as Google Maps, optimize travel routes by considering real-time traffic conditions. These apps provide accurate directions, estimate travel times, and suggest alternative routes, saving time and reducing stress during commutes.

Healthcare: In healthcare, AI is transforming diagnostics and patient care. AI algorithms can analyze medical data, including medical images and patient records, to assist doctors in accurate diagnoses and treatment planning. AI is helping healthcare professionals for decisions and improve patient outcomes.

Overall, AI has a profound impact on various aspects of our lives, enhancing convenience, efficiency, and personalized experiences. As AI continues to advance, its potential to shape a future where intelligent machines coexist harmoniously with humans becomes increasingly promising.

Machine Learning: Revolutionizing Industries and Transforming the Future

Tulsi Patel & Uttpal Patel
Computer Science Department

Introduction:

Machine learning, a subfield of artificial intelligence (AI), has emerged as a groundbreaking technology that holds the potential to revolutionize industries and reshape the future. With its ability to analyze vast amounts of data, recognize patterns, and make accurate predictions, machine learning has found applications in diverse fields ranging from healthcare and finance to transportation and entertainment. This article explores the fundamentals of machine learning, its impact on various sectors, and the challenges and opportunities it presents in our rapidly evolving world.

Understanding Machine Learning:

Machine learning is a branch of AI that focuses on the development of algorithms and statistical models enabling computer systems to learn from data and improve their performance without explicit programming. It involves the construction of mathematical models that learn from experience and adapt to new input, making predictions or taking actions based on patterns and insights derived from data analysis.

Applications Across Industries:

- a. **Healthcare:** Machine learning is transforming healthcare by enabling more accurate diagnoses, predicting disease outcomes, and personalizing treatment plans. It assists in medical imaging analysis, drug discovery, genomics, and patient monitoring, leading to improved patient care and outcomes.
- b. **Finance:** In the financial sector, machine learning is used for fraud detection, credit scoring, algorithmic trading, and risk management. It analyzes vast amounts of financial data to identify patterns and trends, enabling institutions to make data-driven decisions and mitigate risks.
- c. **Transportation:** Autonomous vehicles are a prime example of machine learning's impact on transportation. By leveraging sensors, cameras, and real-time data, self-driving cars can learn to navigate and make intelligent decisions, enhancing road safety and revolutionizing the transportation industry.
- d. **Entertainment:** Machine learning has also made significant strides in the entertainment sector. Recommendation systems, such as those used by streaming platforms, employ machine learning algorithms to personalize content recommendations based on user preferences, leading to improved user engagement and satisfaction.

Challenges and Ethical Considerations:

- a. **Bias and Fairness:** Machine learning models can inherit biases from the data they are trained on, leading to discriminatory outcomes. Ensuring fairness and mitigating biases in machine learning systems is an ongoing challenge that requires careful data curation and algorithm design.
- b. **Privacy and Security:** The use of machine learning often involves handling large amounts of sensitive data. Protecting individual privacy and ensuring data security are critical concerns that must be addressed to maintain public trust and prevent misuse of personal information.

c. **Interpretability:** Machine learning models, particularly complex ones like deep neural networks, can be challenging to interpret. Understanding the reasoning behind their predictions and ensuring transparency is crucial, especially in applications where human lives or legal implications are at stake.

The Future of Machine Learning:

a. **Advancements in Deep Learning:** Deep learning, a subset of machine learning, focuses on neural networks with multiple layers. Ongoing research in deep learning techniques and architectures holds the potential for breakthroughs in areas such as natural language processing, computer vision, and robotics.

b. **Edge Computing and IoT:** As the Internet of Things (IoT) continues to expand, machine learning is being deployed on edge devices to enable real-time decision-making and reduce reliance on cloud computing. This trend empowers devices at the network edge, ranging from smart appliances to industrial sensors.

c. **Responsible AI:** The ethical and responsible deployment of machine learning is gaining increased attention. Organizations are investing in creating frameworks for ethical AI development, encompassing principles of transparency, accountability, and fairness.

Conclusion:

Machine learning has become a driving force behind numerous technological advancements and has the potential to reshape industries and societies. As its capabilities continue to evolve, addressing ethical considerations, ensuring fairness, and fostering transparency will be crucial for realizing its full potential. With responsible deployment, machine learning can lead us into a future where intelligent systems work alongside humans, augmenting our capabilities and enabling groundbreaking innovations.

Conversion of Plastic Waste into Fuel Range Products

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Pyrolysis is the thermal decomposition of materials at elevated temperatures in an inert atmosphere. It involves a change of chemical composition.

The word is coined from the Greek derived elements pyro means “fire” and lysis means “separating”. Pyrolysis of plastic has a great potential to convert plastic waste in valuable products to achieve maximum sustainability. It also helps in Waste Management through the use of modern Pyrolysis technology which is inexpensive than disposal to landfills. In this study, pyrolysis will be used to produce Fuel Oil from plastic waste. Fuel Oil can be analysed by measuring its different Chemical properties such as Viscosity, Flash point, Density etc. Produced Fuel Oil will be used in different engines at cheaper rate.

In pyrolysis we can use different grades of plastic to get different properties of fuel.

Quantity of fuel also depends on the quality of plastic used.

The ash left in the reactor after burning of plastic can be used as adsorbent.

Different catalyst can be also used here to fasten the process and improve the yield.

Thus, the pyrolysis liquid oil produced from various plastic wastes has the potential to be used as an alternative source of energy.

It is not recommended for some types of plastics because they contain harmful substances and have low yields such as PVC [19].

The process is still on research scale so there’s no example of a large unit using this method.

IIT Delhi recently successfully completed this process on lab scale and have also designed the patent for the same.

Environmental Issues Gases, liquids and ashes are released that could potentially harm the environment. There is a need for back-up fuel, possibly produced during the pyrolysis.

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