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Proceedings of the International Conference on

Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development

FEEMSSD-2023 & InDACON-2023

Jointly Organized by

Madan Mohan Malaviya University of Technology
Gorakhpur, Uttar Pradesh, India-273010
KIPM-College of Engineering and Technology Gida
Gorakhpur, Uttar Pradesh, India-273010
Indian Desalination Association (InDA)

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Vitthal L Gole
Rajesh Kumar Yadav
Ravi Shankar
Prateek Khare
Jyoti
(Editors)

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Proceedings of the International Conference on Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development FEEMSSD-2023 & InDACON-2023 (16-17 March 2023)

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Conference Organizers

- Madan Mohan Malaviya University of Technology Gorakhpur, Uttar Pradesh, India-273010
- KIPM-College of Engineering and Technology Gida Gorakhpur, Uttar Pradesh, India-273010
- Indian Desalination Association (InDA)

Conference Venue
Madan Mohan Malaviya University of Technology, Gorakhpur

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FEEMSSD-2023

&

InDACON-2023

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Foreword

Sustainable development in Energy, Environment, Desalination and Material Science has many facets. It encompasses environmental restoration, social progress, and economic growth in a sustainable manner. Infrastructural development through sustainable technologies deserves attention in order to promote prosperity while protecting the planet. Chemical Engineering, to Mechanical Engineering & Civil Engineering are playing key roles in the sustainable development. International Conference on Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development (FEEMSSD-2023) & Annual Congress of InDA (InDACON-2023) focuses on addressing issues and concerns related to sustainability in all domains of Energy, Environment, Desalination and Material Science and attempts to present the research and innovative outputs in a global platform. The conference aims to bring together leading academicians, researchers, technocrats, practitioners, and students to exchange and share their experiences and research outputs in Energy, Environment, Desalination and Material Science. The conference proceedings shall act as the convergence of thoughts and of cutting-edge research outcomes in building a sustainable planet across geographic boundaries. At this juncture, we place on record our sincere gratitude and appreciation for the untiring support and encouragement of all the members of the Advisory Committee, Scientific Committee and Organizing Committee. We also wish to thank the reviewers for striving to maintain the quality of the Conference and the Proceedings.

About the Conference

The conference will focus on current trends and anticipated future concerning desalination, energy, environment, and material science for sustainable development. There are many issues that will be addressed in the conference such as water and wastewater treatment, water resource management, water purification, membrane and thermal desalination, waste management and disposal. Potential application of advanced materials synthesis and applications for solving problems of energy and environment discussed in conference. The conference will not only focus on the paper and poster presentation. There are meeting sessions with featured invited speakers from top experts in respective disciplines deliberate their talk during different technical sessions. Attendees will be able to exchange ideas on the underlying interactions and the usage of developing materials in research and applications in a wide range of energy and environmental fields.

With an eye on the importance of this issue, Department of Chemical, Mechanical, Civil, Chemistry, Pharmacy of MMMUT Gorakhpur, KIPM and InDA is organizing this international conference to deliberate and share new ideas and emerging advancements, and to propose appropriate synergistic techniques towards fulfilling the need of sustainable development in term of energy, environment, and material science.

About the Organizers

About MMMUT Gorakhpur

Madan Mohan Malaviya University of Technology, Gorakhpur has been established in year 2013 by Govt. of Uttar Pradesh in the form of a Non-Affiliating Technical University after reconstituting the Madan Mohan Malaviya Engineering College, Gorakhpur which was established in 1962. Fifty-five batches of students have entered its portals to emerge after 4 years of rigorous education under the tutelage of some of the most venerable teachers, engineers ready to face the world and create new world. The university is located on the Gorakhpur-Deoria Road about 9 km away from Gorakhpur Railway & Bus Station and 5 KM from Gorakhpur Airport. In addition to UG and PG programs in Electronics and Communication Engineering, Computer Science & Engineering, Civil Engineering, Mechanical Engineering, Electrical Engineering and Chemical Engineering, University also offers MCA, MBA, B. Pharm and Ph.D. courses in various specializations. It is a fully residential technological University, with five boys' hostels, three girls' hostels, and residences for faculty and staff. Every bhawan is consummated with a mess, common room, sport facilities like T.T, Volleyball etc. Tilak and Ambedkar are the newly constructed hostels with intake capacity of 120 and 240 respectively. One new Boys Hostel named Ramanujam is nearing completion with capacity of 240 while the additional capacity addition of Raman Bhawan and Subhash Bhawan is underway with capacity addition of 240 each in existing capacity.

About KIPM

KIPM-College of Engineering & Technology have been established under the aegis of Ashutosh Shiksha Evam Sewa Sansthan in the benevolent guidance and leadership of Er. R. D. Singh (President of the Society), to provide quality education to Engineering students. The Promoters are driven by an objective that our students need to be highly accomplished, enterprising, and committed citizens so that they deliver the best values. To achieve such an objective, we follow well-designed and professionally formulated ways of doing things supported by proficient and experienced teachers, a set of adequate infrastructure, and good ambience. The Institute is ISO 9001:2008 QMS Certified for all its courses. Currently total six UG programs B. Tech in CSE, CSE (AI & ML), ME, CE, EE, & ECE and two Diploma programs (ME & CE) are running in the institute.

About Indian Desalination Association

InDA was established in the year 1991 with the main goal for the development and promotion of the appropriate use of desalination and water treatment technologies. Being a neutral association without any commercial bias, InDA is active in spreading awareness and providing an interface for enhanced interaction amongst the stakeholders namely the user sectors, industries, academicians, policy makers and program implementation agencies. InDA is an affiliate of International Desalination Association (IDA) and Asia Pacific Desalination Association (APDA) for policy advocacy and adopting world best practices. Each year InDA conducts conferences/ workshops/seminars/ webinars etc. to enhance the skills as well to interact with small & medium industries to enable them to mitigate the problems related to water & wastewater treatment, its management, and related environmental issues.

About the Editors

Prof. Vitthal L Gole completed his B.E. in Chemical Engineering from Amravati University, M. Tech. in Chemical Engineering from Dr. Babasaheb Ambedkar Technological University, Lonere-Raigad and Ph.D. (Tech) in Chemical Engineering from Institute of Chemical Technology, Mumbai. He has more than 17 teaching and research experience. He has 30 publications in international peer reviewed journals in his credit and more than 40 conference publications. He has received a research grant of Rs. 69 lacs from various funding agencies such as AICTE, IEI, etc.

He has postdoctoral research experience at University of Arizona where he worked in association of US Airforce and solved their actual industrial problem on treatment of aqueous fire-fighting foams using large scale sonochemical reactor. His team developed the first kind of 91 L sonochemical reactor to treatment. His research interests include Process Intensification, Advanced oxidation processes and Biofuels. For his excellence in teaching and research AICTE horned him Career Award for Young Teacher in year 2013. Apart from teaching and research, he has organized severalworkshops, seminars, and conferences on advance topics for teachers and students. He served as secretary of UDCT Alumni Association Pune Chapter. Worked various position in academic administration such as Head- Chemical Engineering, Head-Pharmaceutical Science & Technology,Director-Internal Quality Assurance Cell, Associate Dean Digital Infrastructure, Deputy Coordinator- Admission Cell, Director (Ranking) Higher Education Department, UP State Government, etc. He completed several visits as NAAC Peer Team as Member Coordinator.

Dr. Rajesh Kumar Yadav is a Professor in the Department of Chemistry and Environmental Science Technology, Gorakhpur, U.P. India. Dr. Yadav has guided 4 Ph.D. thesis and more than 21 M.Sc. theses. He has published more than 110 research papers in reputed International Journals and 40 national and international patents. His research interests are in the areas of development of a cheap and efficient light-active photocatalyst that could be utilized for the production of hydrogen, oxygen, and solar fuel chemicals from water using CO_2.

Dr. Ravi Shankar completed his master and Ph.D. from IIT Roorkee and Bachelor from BIT Sindri. Before joining the Madan Mohan Malaviya University of Technology in year 2016, he served in Ordinance Factory, Nalanda Rajgir for three years. His research interests include wastewater treatment and advanced oxidation processes. He has more than 45 international peer reviewed publications in his credit with citation index more than 800. He has received research funding from SERB, UPCST and completed several industrial projects.

At present, he is working on several innovative projects. Apart from teaching and research, he is looking various responsibilities such as warden, joint controller of examination, coordinator RUSA, DDU-QIP, etc.

Dr. Prateek Khare completed his Master and PhD from NIT Rourkela and IIT Kanpur and Bachelorfrom UIET, CSJM Kanpur. He served as a postdoctoral research fellow at NIT Jaipur. His research area includes Electrochemical oxidation, adsorption, microbial fluid and electrochemical reduction. He has received research funding from SERB and completed several projects in collaboration with industries. He has more than 40 publications in his credits in various international peer reviewed journals. He is serving on many committees of academic functioning.

Dr. Jyoti has more than 15 years of teaching and research experience at various prestigious institutions in India. She did his PhD from IIT Roorkee, Master from Panjab University and Bachelor from DCRUST. She has more than 10 publications in international peer reviewed journals and worked on several industrial projects. She is looking for various responsibilities apart from teaching and research.

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Message from Hon. Vice Chancellor

It is my great pleasure that Department of Chemical Engineering, Department of Mechanical Engineering, Department of Civil Engineering, Department of Chemistry & Environmental Science and Department of Pharmaceutical Science and Technology of University in association with Indian Desalination Association and KIPM college of Engineering & Technology, Gorakhpur are jointly organizing International conference on 'Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development' on March 16-17, 2023. The conference received more than 150 high quality papers. Some selective highly quality paper will get the place in international peer reviewed journals. Expert talks across the globe and especially from G20 nations will ignite the minds of upcoming innovators and technocrats. The interactive platform of conference will be highly useful to all stakeholders of the society and achieve the goals of carbon neutral nation by 2075.

My best wishes to organizing team and participants in the conference.

Prof. J.P. Pandey
Vice Chancellor

Message from InDA President

I am extremely happy that International Conference on "Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development" and Annual Congress ofInDA (InDACON-2022)" is being organized by Madan Mohan Malaviya University of Technology (MMMUT), Gorakhpur and KIPM College of Engineering & Technology, Gorakhpur in association with Indian Desalination Association (InDA) on March 16-17, 2023. I would like to congratulate the team of MMMUT, KIPM and InDA for choosing such relevant themes like Desalination, Energy, Environment and Material Science for Sustainable Development for this conference where experts from industry and academic Institutions will deliberate upon the present status and future needs. I am informed that speakers from the Missouri University of Science and Technology, USA, Dongguk University-Seoul, Republic of Korea, University of Saskatchewan, Canada and expertsfrom various Indian academic & research institutes and industry will share their experience and expertise. I am confident that the outcome of the conference will be useful in building the globe a carbon neutral economy and it will also help in bridging the gap between industry, academia, and research institutes.

I wish a grand success for the Conference and InDACON -2023.

Prof. (Dr.) S. P. Chaurasia
President
Indian Desalination Association (InDA)

Message from Convenor

It is matter of indeed pleasure that the international conference, Frontiers in Desalination, Energy, Environment and Material Sciences for Sustainable Development' has jointly organized by MMMUT-Gorakhpur, KIPM-Gorakhpur and Indian Desalination Association (InDA). The conference has included wide number of themes to attract researchers from different research interest. I wish great success of this conference. I am thankful to Prof. J. P. Pandey, honorable vice-chancellor of MMMUT-Gorakhpur and Prof. S. P. Chaurasiya, President of (InDA) for providing us an opportunity for being part of this conference.

I wish good luck to all the participants and thanks to all the members of the organizing committee.

Er. R. D. Singh
Chairman
KIPM Technical Campus

Keynote Speakers

Dr. Ajay Kumar Dalai
PhD., P.Eng., FRSC (Canada), FRSC (UK),FAIChE, FCIC, FEIC, FCAE, FIIChE, FIAAM, FICS, FINAE

Distinguished Professor in Chemical Engineering and Canada Research Chair (Tier 1) in Bioenergy Chemical and Biological Engineering, University of Saskatchewan,Saskatoon, SK Canada S7N 5A9

Dr. Ajay K. Dalai obtained his B.Sc. Tech. in Petro-Chemical Engineering from LIT, Nagpur, and MTech. in Chemical Engineering from IIT Kanpur. Then he served as Petroleum Production Engineerat ONGC, Ahmedabad for about two years and then joined the University of Saskatchewan for his Ph.D. After obtaining his experiences as a PDF at Texas A&M University at College Station in Texas and as a Research Associateat the University of Calgary, Alberta, Canada, he joined the University of Saskatchewanas an Assistant Professor in 1996, and then he was promoted to Associate Professor in 1998 and to Full Professor in 2002. He was promoted to Distinguished Professor at the University of Saskatchewan in 2020. Professor Dalai worked as Tier 2 Canada ResearchChair at the University of Saskatchewan from 2001 to 2009 and then was promoted to Tier 1 Canada Research Chair in 2009 which he currently holds. He has served as Headof Chemical Engineering and as Associate Dean, Research and Partnership in the College of Engineering. Professor Dalai worked as Special Adviser to VP Research Signature Areas of Energy and Mineral Resources. Dr. Dalai's research focus is the novel catalyst development for gas to liquid technologies, biodiesel production, hydrogen/syngas production, hydro processing, value-added products from biomass, and pollution control. He has supervised over 150 M.Sc., Ph.D., and Post-doctoral Fellows and has receivedover 35 million dollars for his research over the past 25 years. Dr. Dalaihas published over 600 research papers mostly in heterogeneous catalysis and catalytic processes in international journals and conference proceedings. He has submitted severalpatent applications. His ground-breaking research has led to over 38,000 citations of hiswork, H-index of 93 and i10-index of 425.

Dr. Tae Wu Kim
Mokpo National University, PhD.(Chemistry)

A distinguished Professor in the Department of Chemistry at Mokpo National University in the Republic of Korea.

Dr. Tae Wu Kim, has obtained his Bachelor degree in Chemistry from Ajou University, Republic of Korea and went on to earn his Ph.D. in (Chemistry) from Korea Advanced Institute of Science and Technology. He completed his Postdoctoral research from Institute for Basic Science, Center for Nanomaterials and Chemical Reactions (CNCR) South Korea, where he conducted research onTime-resolved X-ray scattering and spectroscopy, followed by Post doctoral from Argonne NationalLaboratory Chemical Science Division Lemont, United States. His research focuses on:

- Investigating ultrafast dynamics of photoactive molecules using time-resolved X-raysolution scattering and optical spectroscopy,
- Investigating excited charge carrier dynamics in light harvesting systems and photovoltaicmaterials using femtosecond nonlinear spectroscopic techniques.
- Structural characterizations of various chemical systems using X-ray scattering/diffraction methods.

Dr. Kim's has 86 publications in top-tier international journals, and his work has been widely citedby his peers. In addition to his academic pursuits, Dr. Kim is also a member of the American Chemical Society and the Korean Chemical Society. We are honored to have Assistant Professor Tae Wu Kim with us today, and we look forward to his valuable insights and contributions to this conference.

Dr. Tushar Narendrabhai Desai

Associate Professor in Mechanical Engineering Department, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujarat

Dr T.N. Desai obtained is B.E in Mechanical Engineering from SVR College of Engineering and Technology Surat, M.E in Mechanical Engineering from SVR College of Engineering andTechnology Surat, and PhD. In Industrial Engineering RTM Nagpur University Nagpur. Dr. Desai served in various industries like Magdalla Port Development Project, Surat as a junior engineer and LMP Precision Engg. Co. Pvt. Ltd., Bilimora, Gujarat as a sales engineer and then joined as a lecturer in S. V. Regional College of Engineering & Technology, Surat and served more than 20 year and then joined as associate professor in SVNIT Surat. Dr. Desai Area of Specialization & Interest are Industrial Engineering, Total Quality Management (TQM), Production / Operations Management, Six Sigma, Lean Manufacturing etc. Dr. DesaiPhD. Supervision: 04 Candidates (Ongoing- 2 (FIR), 1 (PEC) at SVNIT and 1 at C.U. Shah University, Surendra Nagar, Gujarat). Dr. Desai published more than 14 SCI paper, more than23 national paper and more than 37 international conferences and more than 28 national conferences. Dr Desai served as Member- Indian Institution of Industrial Engineering (IIIE) National Council for duration 2016-2020, Honorary Treasurer of Indian Institution of IndustrialEngineering (IIIE) for duration 2016-2018. And currently serving as associate professor in Mechanical Engineering department SVNIT, Surat.

Dr Robert Ilango Pushparaj

Ph.D., Chemical Engineering Department of Mining Engineering,

Missouri University of Science and Technology, Rolla, MO 65409, USA

Dr. Robert Ilango done his Doctor of Philosophy (Ph.D.) from Kyung Hee University. He is currently works as a Postdoctoral Researcher at the Missouri University of Science and Technology on a full-time basis, starting from November 2021 to the present. The university is located in Rolla, Missouri, United States. As a Postdoctoral Researcher, the individual is currently working on the topic of Li-ion battery fire risk. This research may involve investigating the causes and mechanisms of Li-ion battery fires, as well as developing new strategies for mitigating this risk in various applications. The individual may work with a teamof researchers and faculty members to contribute to ongoing research projects in this field. Heworked as a Postdoctoral Researcher at the University of North Dakota on a full-time basis, starting from February 2020 to November 2021. The university is located in Grand Forks, ND,USA. During this time, the individual was involved in extracting high-quality carbon materialsfrom coal waste such as hard carbon, graphite, graphene foam, and reduced graphene. Additionally, the individual was involved in developing large-scale, low-cost Li and Na-ion anode composite materials for electric vehicle (EV) applications, such as MoS_2/G, SiO/G, and C. Their research in this area may have involved investigating new methods for extracting and processing carbon materials, as well as developing new materials and composites for use in energy storage applications.

Dr. Chinna Bathula

Korea Research Institute of Nanoscience and Technology

A distinguished Assistant Professor in the Department of Chemistry Dongguk University, Songpa-gu, Seoul, Korea

Dr. Chinna Bathula, has obtained his Master degree in Organic Chemistry from Karnataka University, Republic of Korea and went on to earn his Ph.D. in (Organic Chemistry) from Karnataka University.

Dr. Bathula's research focuses on the synthesis and characterization of advanced nanomaterials, including metal oxides, carbon-based materials, and their composites. His work has been recognized worldwide for its potential applications in energy storage, catalysis, and environmental remediation.

He has 126 publications in top-tier international journals, and his work has been cited over 1500 by his peers. In addition to his academic pursuits. We are honored to have Assistant Professor Tae Wu Kim with us today, and we look forward to his valuable insights and contributions to this conference.

We are honored to have Dr. Bathula as a keynote speaker for this international conference. I am confident that his expertise and insights will enrich our discussions and contribute to the advancement of the field.

Dr. Bishnu Acharya

Ph.D., P. Eng.

Associate Professor & Research Chair of Saskatchewan Ministry of Agriculture in Bioprocess Engineering, Department of Chemical and Biological Engineering, College of Engineering, University of Saskatchewan

Dr. Bishnu Acharya obtained his B.E in Mechanical engineering from institute of Engineering,Nepal in 2001-2005, M.E in Energy Technology Asian institute of Technology in 2006-2008,and PhD. in Mechanical Engineering from Dalhousie University 2008-2011. After completingPhD. Dr. Bishnu joined as General Manager- Project in Greenfield Research Incorporated Halifax, Canada and served more than 3.5 year and then joined as research associate in Dalhousie University and served more than 1 year. Dr. Bishnu joined as assistant professor University of Prince Edward Island Charlottetown, PEI and served more than 7.5 year and thenjoined Associate Professor University of Saskatchewan Saskatoon, Saskatchewan, Canada. Dr Bishnu research interest areas are Cellulose-based biomaterials, biochemicals and nanocomposites Thermochemical and biochemical conversion technologies.

Mr. Hemish Kapadia

Industrial Water Treatment Expert | RO Treatment Specialist | Vasu Chemicals | H_2Odoc

Mr. Hemish Kapadia has done his Bachelor of Engineering (Chemical engineering) from Savitribai Phule Pune University, Maharashtra. Expert in the Water Treatment Industry with over 22 years of experience. He worked as a Project Coordinator at Indokem Limited, the individual served in this role from March 1993 to March 1996, amounting to a tenure of 3 yearsand 1 month. Indokem Limited is located in Ankleshwar, and during this time the Project Coordinator was responsible for techno-commercial finalization for plant and machinery suppliers, and was also involved in product trial runs for the Vat Dyes Expansion Project. Theindividual's role required a strong ability to coordinate and communicate effectively with suppliers and other stakeholders to ensure the successful completion of projects. He is the managing partner of Neo Nir Engineering has been serving in this role since January 2000 andcontinues to do so presently. This amounts to a tenure of 23 years and 3 months as of the currentdate. Neo Nir Engineering is based in Surat, Gujarat, India. He is Water Treatment Expert at Vasu Chemicals has been serving in this role since January 2000 and continues to do so presently, amounting to a tenure of 23 years and 3 months as of the current date. Vasu Chemicals is a company that specializes in providing industry-leading technological solutionsfor a wide range of application areas, including industrial water treatment, process chemicals,and integrated dosing systems in varied industries. The Water Treatment Expert at Vasu Chemicals is highly knowledgeable and experienced in the field of water treatment and provides expertise to the company's clients to help them achieve optimal results in their industrial processes.

Dr. Vinay M. Bhandari

Chemical Engineering & Process Development

CSIR-National Chemical Laboratory

Dr. Vinay M. Bhandari is a highly accomplished scientist and Chief Scientist (Scientist G) at the National Chemical Laboratory (NCL) in Pune, India. He is affiliated with the Chemical Engineering and Process Development Division at NCL. He obtained his B. Chem. Eng. fromUniversity Department of Chemical Technology, UDCT, Bombay and Ph. D. (Chem. Eng) from IIT Bombay. He has more than 30 years of research experience including 2 years of industrial experience. He worked as a visiting faculty at Tohoku University, Sendai, Japan in 1998-99 and also as visiting scientist at Korea Institute of Energy Research, Daejeon, South Korea during 2004-05. Dr. Bhandari guided several graduate and post-graduate students and has worked as a consultant to many industries. He has more than 200 publications/presentations; 2 US patents; filed >10 patents He has developed 3 technologies based on hydrodynamic cavitation for Disinfection of water, for Industrial wastewater treatment (commercialized in India & abroad) and for Desulfurization of fuels. His desulfurization work received GYTI award for Technological Innovation, conferred by the Hon. Vice President of India on 6th July, 2019. His research interests include Chemical and Environmental Engineering, Advanced Separation Processes and Industrial wastewater treatment, recycle and reuse. His insights and experience in the field of chemical engineeringwill be valuable for the participants, and his presentation will undoubtedly be informative andengaging.

Peer-review Statement

All papers considered for publication in this proceedings have been peer reviewed through processes administered by the conference organizer. Double stage reviews process was conducted by relevant expert.

Conference Schedule

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<tr><td>09:30 AM – 10:00 AM</td><td colspan="3">Keynote Address – I: Dr. Ajay K. Dalai, University of Saskatchewan, Canada (CH-107)</td></tr>
<tr><td>10:00 AM – 10:30 AM</td><td colspan="3">Keynote Address – II: Dr. Tae Wu Kim, Mokpo National University, Republic of Korea (CH-107)</td></tr>
<tr><td>10:30 AM – 11:15 AM</td><td colspan="3">Keynote Address – III: Dr. Vinay Srivastava, IIT Bombay, India (CH-107)</td></tr>
<tr><td>11:15 AM – 12:00 AM</td><td colspan="3">High Tea and Registration: ITRC Lounge</td></tr>
<tr><td>12:00 AM – 01:30 PM</td><td colspan="3">Inauguration (Aryabhata Hall, ITRC)</td></tr>
<tr><td>01:30 PM – 02:30 PM</td><td colspan="3">Lunch Break</td></tr>
<tr><td>02:30 PM – 02:50 PM</td><td>Expert Talk – I: Dr. T. N. Desai, SVNIT, Surat (CH-107)</td><td colspan="2" rowspan="2">02:30 PM – 04:30 PM: Hands on session on ‘Process Plant Simulator’ by Mr. Raghuraman L., SIMINFOSYSTEM Pvt Ltd
(ME Seminar Hall/ CH Computer Lab)</td></tr>
<tr><td>02:50 PM – 03:10 PM</td><td>Expert Talk – II: Industrial Expert Talk (CH-107)</td></tr>
<tr><td>03:10 PM – 03:30 PM</td><td colspan="3">Tea</td></tr>
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<tr><td>10:10 AM – 10:30 AM</td><td colspan="2">Expert Talk – VI: Mr. Hemish Kapadia, Nio Nir Pvt Ltd, Surat (CH-107)</td></tr>
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<tr><td>02:30 PM – 03:30 PM</td><td colspan="3">Panel Discussion (Aryabhata Hall, ITRC)</td></tr>
<tr><td>03:30 PM – 04:30 PM</td><td colspan="3">Valedictory Session (Aryabhata Hall, ITRC)</td></tr>
<tr><td>04:30 PM – 05:00 PM</td><td colspan="3">Tea</td></tr>
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Acknowledgments

The organizing committee is thankful to all the people (participant, experts, and industrial person) who has contributed in the FEEMSSD-2023. The Committee is also thankful to KIPM, InDA and MMMUT for providing a platform (Financial and technical support) to organize this mega event.

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