

EVENT REPORT

Title of the Programme: Computational Approaches for Engineering
Programme code: NC-GUJ-22

Programme duration: 05/02/2024 to 09/02/2024

Venue: NITTTR, Extension Centre, Ahmedabad

A Faculty Training Program (FDP) on “Computational Approaches for Engineering” was organized by Chemical Engineering Department, L. D. College Of Engineering, Ahmedabad during 5th – 9th February, 2024 in collaboration with NITTTR Gujarat Extension Center, Ahmedabad. A total of 26 participants including faculties from various degree and diploma engineering colleges from all over Gujarat attended the FDP. The inauguration ceremony was held on 05/02/2024 at 10:00 AM. The chief guests of the function were Honorable Dr. Manish Thakker, Professor and Head, IC Department, L. D. College of Engineering, Ahmedabad and Dr. C. H. Vithalani, Professor and Head, EC Department, L. D. College of Engineering, Ahmedabad. All the dignitaries in their respective speeches highlighted the importance of FDP and its relevance in the modern world. Dr. Nishith Dubey, Professor, NITTTR, Bhopal was the coordinator of the STTP and Dr. S. A. Amin, Dr. R. R. Patel and Dr. T. S. Rajaraman worked as the co-coordinators of the STTP.

During the one week period, experts in the field of chemical engineering and chemistry shared their knowledge and experiences with the participants. Experts from industry also emphasized on the recent advances in computational tools and software . Experts from academia from the chemical engineering field like Dr. R. K. Mewada, Dr. Milind Joshipura, Dr. Nitin Padhiyar, Dr. Dharmashi Rabari, Dr. Sridhar Dalai, Dr. Anil Markana, Dr. N. M. Patel, Dr. Kamlesh Gurjar delivered lectures and hands-on sessions on the computational and simulation softwares in engineering. Dr. R.K. Mewada explained about the importance of batch scheduling and demonstrated utilization of Excel for the same. Dr. Milind Joshipura demonstrated application of ChemCAD software in simulation of distillation columns. Dr. N.M. Patel conducted a session on Multiobjective Optimization and portrayed the use of evolutionary algorithms for the same. Dr. Dharmashi Rabari explained usage of Gaussian software for molecular simulations. Dr. Nitin Padhiyar demonstrated a blend of Excel and MATLAB for regression and optimization. Dr. Anil Markana demonstrated lexicographic technique-based optimization. Dr. Shridhar Dalai demonstrated the applicability of Aspen Plus software for the simulation of process equipments

such as heat exchangers, flash separator, etc. Dr. Kamlesh Gurjar also demonstrated applicability density functional theory using ORCA software. Experts from industry like Mr. Himanshu Sagar, Mott McDonald Ltd., Mr. Shrey Patel, Angiras Rasayan Pvt. Ltd. Mr. Rahul Goel shared their expertise based on implementation of sustainable technologies at industry. Mr. Rahul Goel and Mr. Jaydip Pathak shared their knowledge by taking various case studies, which included pipe sizing, pump selections and plant layout. Mr. Himanshu Sagar demonstrated intricacies of project planning, implementation and execution. Mr. Shrey Patel shared his view on designing of heat exchanger network and energy saving potential. Event coordinators Dr. Nishith Dubey, Dr. Shital Amin and Dr. Ronakkumar Patel also conducted sessions on entrepreneurship, Multiobjective optimization and heat integration, respectively. A visit to a computational laboratory at Ahmedabad University was arranged where all the participants got a hand-on experience on working with Aspen Plus simulation software. Additionally, participants were also exposed to basic operations in software like MATLAB, ChemCAD and ORCA. Special emphasis was given on how the research work in various fields of engineering can be carried out by taking advantage of the computational abilities of these software. The workshop was highly appreciated by the faculty community and was seen as a great opportunity to pass on the knowledge and skills gained from the FDP to students. The faculties benefited immensely from the lectures and experiences shared by the experts and industrialists which will surely help them in their academic career and in their research work.

The valedictory session was conducted in the afternoon hours from 4:00 pm onwards on 09/02/2024. The event was graced by Dr. Paresh Raval, Principal, RCTI, who asked the faculties to come up with more such workshops which benefits the overall community. The coordinators highlighted the achievements of the workshop. Certificates were distributed to the participants. Participants shared their feedback about the workshop. All the participants gave positive feedback about the workshop and welcomed the initiative. The ceremony was concluded by a vote of thanks.

EVENT PHOTOGRAPHS



EVENT PHOTOGRAPHS



PROGRAMME SCHEDULE

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Date	Session I 10.00 - 11.30	Session II 11.45-1.15	Session III 2.15-3.45	Session IV 4.00- 5.30
Day 1	<ul style="list-style-type: none">• Registration• Inauguration• Programme brief• Expectations	Batch Scheduling in Chemical Process Industries (Dr. Raju Mewada, Professor, LEC Morbi)	Simulation of Distillation Columns using CHEMCAD (Dr. Milind Joshipura, Professor, Nirma University)	Multi Objective Optimization (Dr. N. M. Patel, Professor, GEC Valsad)
Day 2	Computational Chemistry for Engineering (Dr. Dharamashi Rabari, Asst. Prof., A'bad University)	Response Surface Methodology (Dr. Nitin Padhiyar, Asso. Prof. IIT Gandhinagar)	Lexicographic Optimization-based Control Design (Dr. Anilkumar Markana, Asso. Prof. PDEU)	HINT- Software for Heat Integration (Dr. Ronakkumar Patel, Asst. Prof., LDCE) Task-I (Hands-on Session on HINT Software)
Day 3	NEP-2020(Dr. Nishith Dubey, Professor, NITTTR, Bhopal)	Role of Optimization in Resin Industry (Dr. Shital Amin, Asso. Prof., LDCE)	Industrial Visit to Mott Macdonald	
Day 4	Modelling and Simulation of Shape Memory Polymer Blends (Ms. Surbhi Khewle, PMRF Fellow, IIT Gandhinagar)	Task – II (Ms. Surbhi Khewle, PMRF Fellow, IIT Gandhinagar)	Design and Energy Analysis of Ethylene Oxide Production Process using Aspen Plus (Dr. Shridhar Dalai, Asst. Prof., A'bad University) at Ahmedabad University	Task – III (Hands-on Session on Aspen Plus at Ahmedabad University)
Day 5	Maximum Energy Recovery using Heat Exchanger Network (Mr. Shrey Patel, Chartered Chemical Process Engineer, Angiras Rasayan LLP)	Density Functional Theory- A Practical Approach (Dr. Kamlesh Gurjar, Asst. Prof., VGEC)	Entrepreneurship and Management (Dr. Nishith Dubey, Professor, NITTTR, Bhopal)	<ul style="list-style-type: none">• Task-IV (Exam)• Feedback and Valedictory Session

Tea Break: 11.30 AM to 11.45 AM and 03.45 PM to 04.00 PM; **Lunch Break:** 01.15 PM to 02.15 PM

LIST OF PARTICIPANTS

APPENDIX-I

Commissionerate of Technical Education, Gujarat State, Gandhinagar

Prog. Code :: NC_GUJ_23_22, "Computational Approaches for Engineering"

Venue :: NITTTT Ext. Centre Ahmedabad

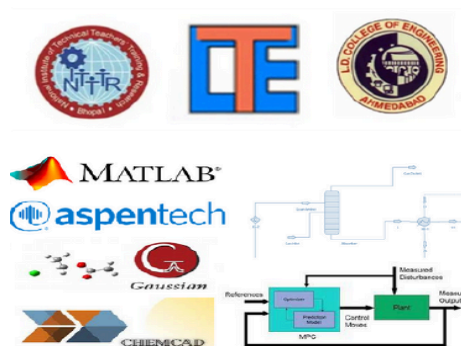
Period :: 05-02-2024 to 09-02-2024

List of Participants

Sr. No.	Name	Designation	Dept.	Institute
1.	DIVYANG RIKHAVCHAND SHAH	Asso. Pr. (CI-1)	Mechanical	GEC, Dahod
2.	SAMRUDDHI P PATEL	AP (CI-2)	Mechanical	GEC, Modasa
3.	DIPAKKUMAR JITENDRAKUMAR PARMAR	AP (CI-2)	Mechanical	GEC, Patan
4.	HARSHADBHAI PUNABHAI PATEL	Lecturer	IC	GP, Ahmedabad
5.	HEMINKUMAR VARDHILAL THAKKAR	Lecturer	Mechanical	GP, Ahmedabad
6.	MUKULKUMAR VITTHALBHAI DANANI	Lecturer	Plastic	GP, Ahmedabad
7.	VIJAYKUMAR ATULBHAI BHAGORA	Lecturer	Mechanical	GP, Dahod
8.	KIRITKUMAR LIMBABHAI KHARADI	Lecturer	Chemical	GP, Gandhinagar
9.	VIKASSINGH BHAVARSINGH CHAUHAN	Lecturer	Chemical	GP, Gandhinagar
10.	MAMTA PRUTHVISH PATEL	Lecturer	Mechanical	GP, Godhra
11.	SAGAR MAHENDRA KUMAR KAPADIYA	Lecturer	Chemical	GP, Valsad
12.	VIPULBHAI SURJIBHAI PATEL	Lecturer	Plastic	GP, Valsad
13.	NISHABEN VINODCHANDRA TANK	Lecturer	Plastic	GP, Valsad
14.	PRADIPKUMAR MOHANLAL PATEL	Lecturer	Mechanical	KDP, Patan
15.	SHIVAMKUMAR NALINKUMAR PANDYA	Lecturer	Chemical	KJP, Bharuch
16.	VIDYA SAGAR SINHA	Lecturer	Mechanical	KJP, Bharuch
17.	JAGRUTI MITESH SHAH	Lecturer	Mechanical	KJP, Bharuch
18.	SHRUTI BHARATKUMAR MEHTA	Lecturer	Mechanical	KJP, Bharuch
19.	SANDIP HARSHADBHAI BHATT	AP (CI-2)	Chemical	LDCE, Ahmedabad
20.	MONIKA K VYAS	AP (CI-2)	Mechanical	LDCE, Ahmedabad
21.	HARISHKUMAR M RAVAT	AP (CI-2)	Mechanical	LDCE, Ahmedabad
22.	KEYUR PARSOTTAMBHAI HIRPARA	AP (CI-2)	Mechanical	LDCE, Ahmedabad
23.	MEHULKUMAR NANDLAL PATEL	Lecturer	Mechanical	RCTI, Ahmedabad
24.	SURESH MAGANLAL TANK	Lecturer	Mechanical	RCTI, Ahmedabad
25.	AMRUTA NEELKANTH MAHAJAN	Lecturer	Mechanical	RCTI, Ahmedabad
26.	CHIRAG JAYANTILAL SHAH	Lecturer	Mechanical	SSGP, Surat

Officer on Special Duty
Technical Education

EVENT BROCHURE



Faculty Development Programme
on

“Computational Approaches for Engineering”

(05-09 February, 2024)

Organized By

National Institutes of Technical Teachers'
Training & Research, Bhopal in
collaboration with Chemical Engineering
Department

(NBA Accredited),

L. D. College of Engineering, Ahmedabad

The post graduate course started in 2002 with an intake of 18 students offering specialization in Computer Aided Process Design (CAPD). The department is currently headed by Dr. P. H. Rana. The department has 2 Professor, 4 Associate Professors, 10 Assistant Professors and 2 laboratory assistants. The department has well developed laboratories and computer center. The department works for the overall development of the students by regularly organizing workshops, expert lectures, industrial visits and other technical activities. The students are regularly placed in good corporate houses after successful completion of courses. Department has also received NBA Accreditation for three years with effect from 01/07/2021.

ABOUT NITTTR, BHOPAL, GUJARAT EXTENSION CENTRE

NITTTR Regional Center Ahmedabad was established in 1974 and for last forty nine years it is catering for the needs of the Gujarat state. It helps the Gujarat Technological University (GTU), Commissionerate of Technical Education (CTE), Gujarat, and other self-financed universities and institutes in improving quality of engineering and technical education by working as a link between these organization and NITTTR, Bhopal.

OBJECTIVE OF PROGRAMME

Modelling, simulation, computational chemistry, design, control, instrumentation, and operations all use advanced computational tools. The training program emphasizes practical applications of various computation approaches currently used by small, medium and large-scale industries. Hands-on sessions, case studies, industrial visit to EPC (engineering procurement and construction) based industry and interactive workshops will allow participants to integrate theoretical knowledge into actionable skill and also try to bridge the gap between industry and academia.

PROGRAM CONTENT

- Simulation using ChemCAD software
- Quantum calculation using Gaussian software
- Multi-objective Optimization
- Applications of Optimization
- Mathematica
- Process Integration using Aspen Plus
- Heat Exchanger Network
- Model predictive control and its application
- Batch scheduling in process industries
- Pump Hydraulics

RESOURCE PERSONS

Eminent Speakers from reputed Universities, Industries & Institutes of National repute.

TARGET AUDIENCE

Faculty from chemical, rubber, plastic, environmental, mechanical and allied branches in Degree/ Diploma Government/Self-financed Colleges can apply for the training.

ORGANIZING COMMITTEE

Patron

Prof. (Dr.) C.S. Sanghavi, Principal, L.D.C.E.

Convener

Prof. (Dr.) P.H. Rana, Professor & Head, Chemical Engineering Department, L.D.C.E.

Coordinator

Prof. (Dr.) Nishith Dubey, Professor, NITTTR, Bhopal

Co-coordinator

Prof. (Dr.) S.A. Amin, Associate Professor, Chemical Engineering Department, L.D.C.E.

Prof. (Dr.) R.R. Patel, Assistant Professor, Chemical Engineering Department, L.D.C.E.

Prof. (Dr.) T.S. Rajaraman, Assistant Professor, Chemical Engineering Department, L.D.C.E.

ABOUT THE INSTITUTE

L. D. College of Engineering is a premier Engineering college in Gujarat State set with the objectives of imparting higher education in various fields of engineering. The institute is affiliated to Gujarat Technological University and administered by the Department of Technical Education, Gujarat state. Seven departments of this institute (i.e. Civil Engg. Electrical Engg, Mechanical Engg., Chemical Engg, IC, Computer Engg., Rubber Technology) have been conferred accreditation status by the National Board of Accreditation (NBA). The campus consists of buildings for various departments, offices, hostels and library with 64,565 sq.m. Built-up area. At present, the institute runs 16 Under Graduate, 19 Post Graduate and 4 Part time programs.

ABOUT THE DEPARTMENT

The Chemical Engineering Department started its UG course in 1974 with an intake of 30 students and affiliated to Gujarat University. From 2008 onwards, the intake was increased to 60 students with affiliation to Gujarat Technological University.

HOW TO APPLY

Number of participants: 50 (Maximum)
Application through TNA Portal for government faculty is compulsory.
All other applicants need to register directly at NITTTR using following link.

https://erp.nitttrbpl.ac.in/poc2023/online_mode/partilLogin.jsp?calSession=2023-2024

VENUE

The training will be organized at NITTTR Gujarat Extension Center, Ahmedabad currently located at RCTI, Sola, Ahmedabad. Lodging and boarding facilities may be provided for outstation candidates at nominal charges.

REGISTRATION FEES

Participant will have to register at NITTTR portal with a registration fee of Rs 118/-.

For Further Details Contact:

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Prof. (Dr.) S.A. Amin
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E-mail: shital.amin@ldce.ac.in

Prof. (Dr.) R.R. Patel
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