Technical Education Quality Improvement Programme (TEQIP)-III
Sponsored
One Week Workshop
On

"MODELING AND SIMULATION OF HEAT TRANSFER EQUIPMENTS USING ASPEN PLUS"

16 March to 21 March, 2021

Venue: Chemical Engg. Dept., P.V.P.I.T., Budhgaon

REGISTRATION FORM | No. |

Full Name of Participant: _____
(first name) (middle name) (surname)

Designation: _____

Qualification _____

Department _____

Institute/ Organization Name and Address:

_____

_____

Mobile :- _____

Email :- _____

Date:- _____

Signature of Participant: _____

Recommendation by Head :
of the Department/ Institute _____
Seal :

CHIEF PATRONS:

Hon. Dr. Aniruddehed B Pandit

In charge Vice Chancellor, Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad (MH).

Hon. Shri. Vishaldada Prakashbapu Patil

Chairman, Dr. Vasantraodada Patil Shetkari Shikshan Mandal, Sangli (MH).

PATRONS:

Prof. S. B. Deosarkar, Coordinator TEQIP

Hon. Shri. Amit Vijayrao Patil , Trustee, Dr.VPSSM

Hon. Shri. P.L. Rajput, Chairman, Gov. Council.

Hon. Shri. A.B. Magdum, Secretary, Dr.VPSSM

ADVISORY COMMITTEE:

Dr. D.V. Ghewade, Principal, PVPIT

COORDINATOR:

Prof Unmesh S. Patil, Head, Chemical Engineering Department, Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon, Sangli, (MH).

CO-COORDINATOR:

Mr. Prashant. Dhanke, Chemical Engineering Department, PVPIT, Budhgaon, Sangli (MH).

CHEMICAL ENGINEERING DEPT. P.V.P.I.T. BUDHGAON

Technical Education Quality Improvement Programme (TEQIP)-III
Sponsored

TEQIP-3

One Week Workshop

On

"MODELING AND SIMULATION OF HEAT TRANSFER EQUIPMENTS USING ASPEN PLUS"

(Online Mode)

16 March to 20 March, 2021

Organized by

Chemical Engineering Department,
Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon, Sangli, Maharashtra
www.pvpitsangli.edu.in

at DBATU:

Dr. Babasaheb Ambedkar Technological University is one and only one of its kinds in the State. The University is located at Lonere, the place in the ranges of Western Ghat, at the base of Raigad fort, the place from where Chhatrapati Shivaji administered his major activities. It wais established in the year 1989 by the Government of Maharashtra. Although relatively young, the University is making its mark in the field of research and technological services through its dedicated faculty and disciplined students. At present University conducts six M.Tech. and eight B.Tech. programs in various disciplines of engineering and technology. The University also offers Ph.D. in various disciplines of engineering and technology. Chemical engineering department of the university is well known for its well qualified staff and research activities. The department offers B.Tech.,M.Tech. and Ph.D. in Chemical Engineering and has excellent reputation in the region.

The university has been accorded the status of an 'affiliating' university of the entire State of Maharashtra from March 2, 2016, by the Maharashtra Act No. XXIX of 2014.

About PVPIT :

The institute was established in the year 1983 by great visionary Padmabhooshan Dr. Vasantraodada Patil, initially with five under graduate programmes with sole objective of rural development through technical education. The institute is approved by AICTE New Delhi, recognized and affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad. Currently the institute is offering eight programs in U.G. as well as P.G. The institute is reputed for its high academic standards, well maintained discipline and excellent infrastructural facilities. The institute is located on Sangli-Tasgaon road, at Budhgaon, which is about 7 kms away from Sangli.

About Department

The department of Chemical Engineering is established in the year 1983, initially with intake capacity of 30, later increased to 60 in the year 1998. The department has well qualified, experienced & devoted faculty. The department is well equipped with all the laboratory facilities and has strong alumni base across India and abroad.

The department has consistent placement record and continuously improving to offer excellent learning environment to students.

Department Organizing Committee:

Dr. S. L. Bhagat	Prof. S. Y. Pawar
Prof. N. V. Ghasghase	Prof. V. S. Kore
Prof. A. D. Patil	Dr.S.S.Patil
Prof. Miss. P. C. Kale	Prof.Miss. A .P.Patil

Resource persons:

Session will be conducted by Eminent Professors, researchers and experts from DBATU Lonere, PVPIT Budhgaon, along with other reputed Institutes and Industries

Who Will Benefit

Course is intended for young and junior faculties from all AICTE recognized engineering colleges / polytechnics, PhD research scholars Post Graduates in Chemical Engineering Allied discipline and young persons from Industries.

Objective:

1. To study basic concepts of Aspen Plus in modeling and simulation..
2. To create model of heat transfer equipments and its simulation using Aspen Plus with actual Hands on examples and exercises.
3. To provide a platform for interaction on recent inventions in modeling and simulation using Aspens Plus.

Topics to be covered:

1. Introduction to Aspen Plus
2. Introduction to Aspen plus Interface
3. Heat Transfer Equipments
4. Agitated Thin Film Evaporator
5. Modeling of ATFE
6. Heat Exchanger Design
7. Simulation of Flash Separation
8. Simulation of Reactive Distillation
9 Fire and explosion prevention.

The entire workshop will be conducted online through Google meet.

Eligibility Criteria:

Faculties from all AICTE recognized engineering institutes / polytechnics, PhD research scholars, PG Students in Chemical Engineering and Allied disciplines and young persons from Industries.

Registration Fee and Charges.

There is **no registration fee** for this course. The registration form duly filled with institution seal should be sent by email / post to the organizers latest by 15th March 2021. Participants are requested to email scanned copy of registration form to pvpitchemical@gmail.com.

For Registration Contact:

Prof. Abhijeet D. Patil
(M.) 7588171424, 9511786987
Email: pvpitchemical@gmail.com

Prof. Miss. A.P.Patil
(M) 9028711267
Email: pvpitchemical@gmail.com

Important Dates:

The duly filled registration for may be sent either as an email attachment to or as a hard copy on or before **15th March 2021.**

of Technology Budhagaon (Sangli) 416304.

Department of Chemical Engineering

(U.G Programme NBA Accredited)

TEQIP-III Sponsored One Week Workshop

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(Online Mode)

16th March - 20th March 2021

List of Students as Participants

Sr. No.	Name	Email ID	Designation	College / Industry Name	Mobile no
1	Ninad Mahendra Patil	ninadp54@gmail.com	Final Year B.Tech Student	Pvpit, Budhgaon	
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3	Vaishnav Ajit Patil	pvaish260@gmail.com	Final Year B.Tech Student	Pvpit, Budhgaon	
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8	Tushar Tanajirao Shinde	tusharshinde2699@gmail.com	Final Year B.Tech Student	Pvpit, Budhgaon	
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12	Saloni Dhumal	salonidhumal0@gmail.com	Final Year B.Tech Student	Pvpit, Budhgaon	

CHEMICAL ENGINEERING DEPT. PVPIT BUDHGAON

HOD and Co-ordinato

"MODELING AND SIMULATION OF HEAT TRANSFER EQUIPMENTS USING ASPEN PLUS"

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List of Participants

Sr. No.	Name	Email ID	Designation	College / Industry Name	Mobile no
1	Mr Akhilesh Khapre	akhileshkhapre@gmail.com	Assistant Professor	NIT, Raipur	831981319
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of Technology Budhagaon (Sangli) 416304.

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37	Mrs Pallavi C Kale	kalepallavi2911@gmail.com	Assistant Professor	PVPIT, Budhagaon	8668242886
38	Miss Asmita P Patil	asmitapatil10@gmail.com	Assistant Professor	PVPIT, Budhagaon	9028711267
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of Technology Budhagaon (Sangli) 6304.

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Sr. No.	Name	Email ID	Designation	College / Industry Name	Mobile no
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54	Dr Abhijit Chavan	archavan@dbatu.ac.in	Associate Professor	DBATU, Lonere	9987891080
55	Dr Rahul Patil	rahulpatil11@gmail.com	Associate Professor	DYPCET, Kolhapur	9823167767
56	Mrs Sneha Patnawar	snehakagale1@gmail.com	Assistant Professor	KIT, Kolhapur	8971105231
57	Mr Annasaheb Warade	arwarade@gmail.com	Associate Professor	PREC, Loni	7588605565
58	Mr Mayurkumar Patil	mppatil@mitaoe.ac.in	Assistant Professor	MIT, Alandi	9764143441
59	Mrs Ujwala Shinde	Ushinde32@gmail.com	Industrialist	ISSM,Pune	8530225453
60	Mr Sudhir Yadav	sdyadv@jnec.ac.in	Assistant Professor	JNEC, Aurnagabad	7972702195

Co-ordinator

TEQIP-III Sponsored

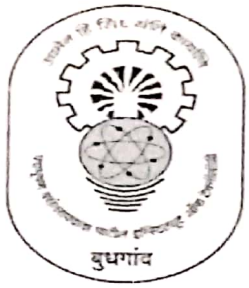
One Week Workshop

On

"Modeling and Simulation of Heat Transfer Equipments Using ASPEN PLUS"

(online mode)

(16th – 20th March, 2021)



Organized by

Dr. V.P.S.S.M.'s

Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon, Sangli (MH)

(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere)

Department of Chemical Engineering

(NBA accredited)

Coordinator

Prof. U. S. Patil

HOD, Department of Chemical Engineering,

Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon, Sangli

Venue

Chemical Engineering Department,

PadmabhooshanVasantraodada Patil Institute of Technology Budhgaon Sangli-MH

Contents

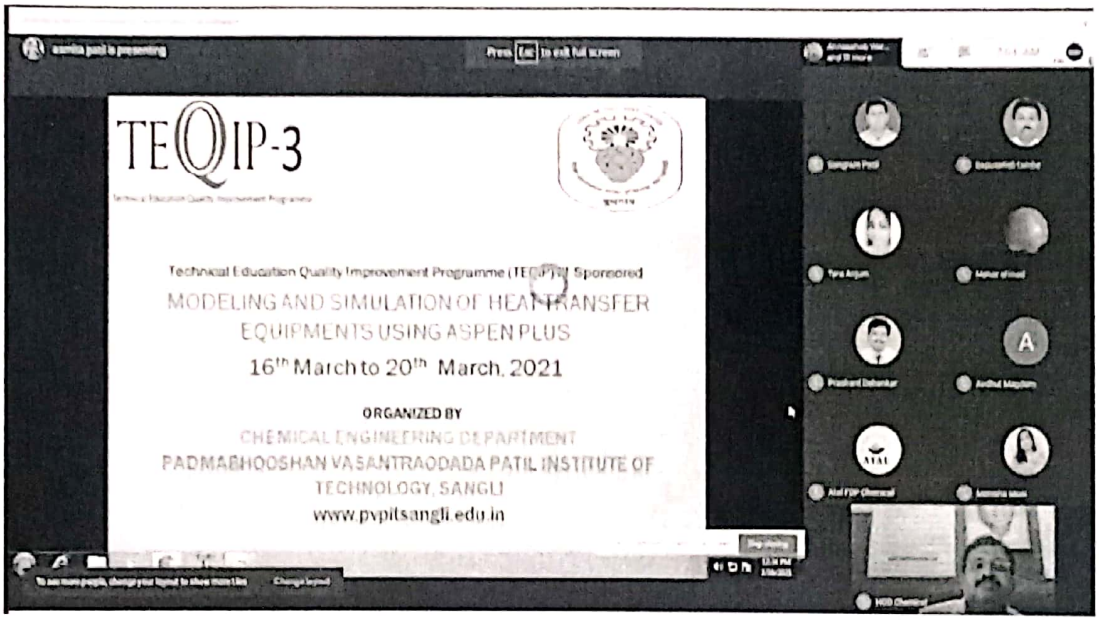
9	**Modeling and Simulation: Unmixed Combustion (UMC) Process Equipment for Heat Transfer** (Dr. Amol Deshpande, Assistant Professor, Department of chemical Engineering, BITS, Pilani-KK Birla Goa Campus)	
	Valedictory Function	

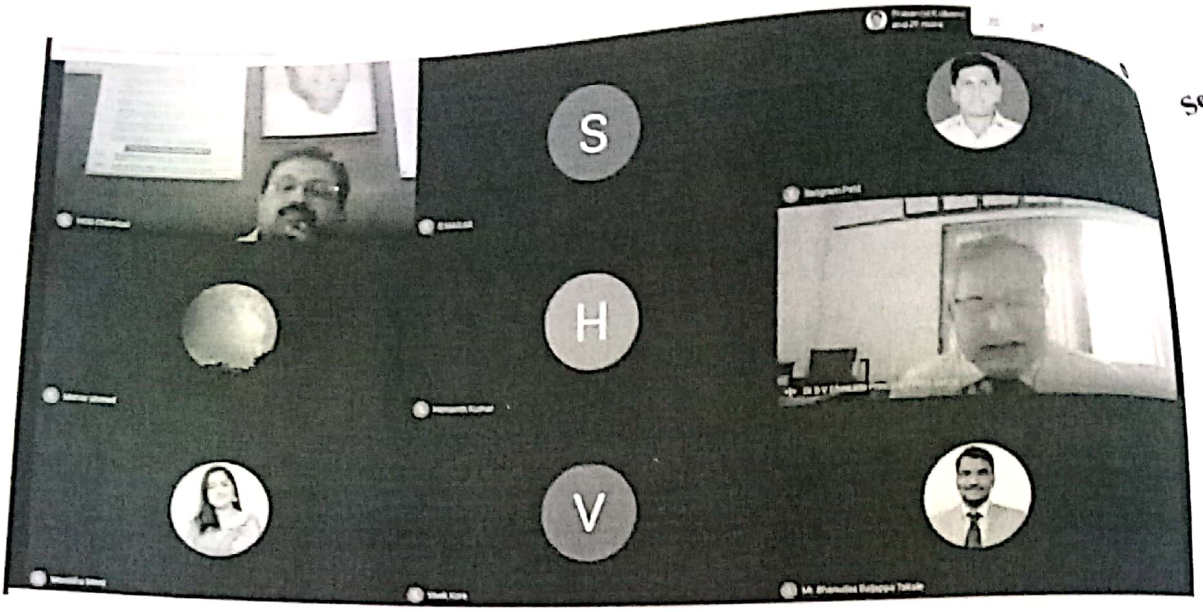
Sessions Conducted

Day 1: 16/03/2021

Inauguration Function

The inauguration ceremony of workshop "Modeling and Simulation of Heat Transfer Equipments Using ASPEN PLUS" was held on the first day of workshop in the afternoon. Dr. D. V. Ghewade, Principal PVPIT Sangli, Prof. U. S. Patil, Coordinator of workshop of Chemical Engineering department, PVPIT Sangli was present along for the inauguration function. In this ceremony, Prof. U. S. Patil did welcomes to the resource person and participant of this workshop and has given brief introduction about the workshop on "Modeling and Simulation of Heat Transfer Equipments Using ASPEN PLUS". Dr. D.V.Ghewade said about chemical engineering department and thanked to the TEQIP-III for one week workshop. He highlighted the importance of ASPEN PLUS, innovations from chemical engineering, process intensification.





Session -1
Day: 16-03-2021
Speaker: Prof. S
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Topic: Fi

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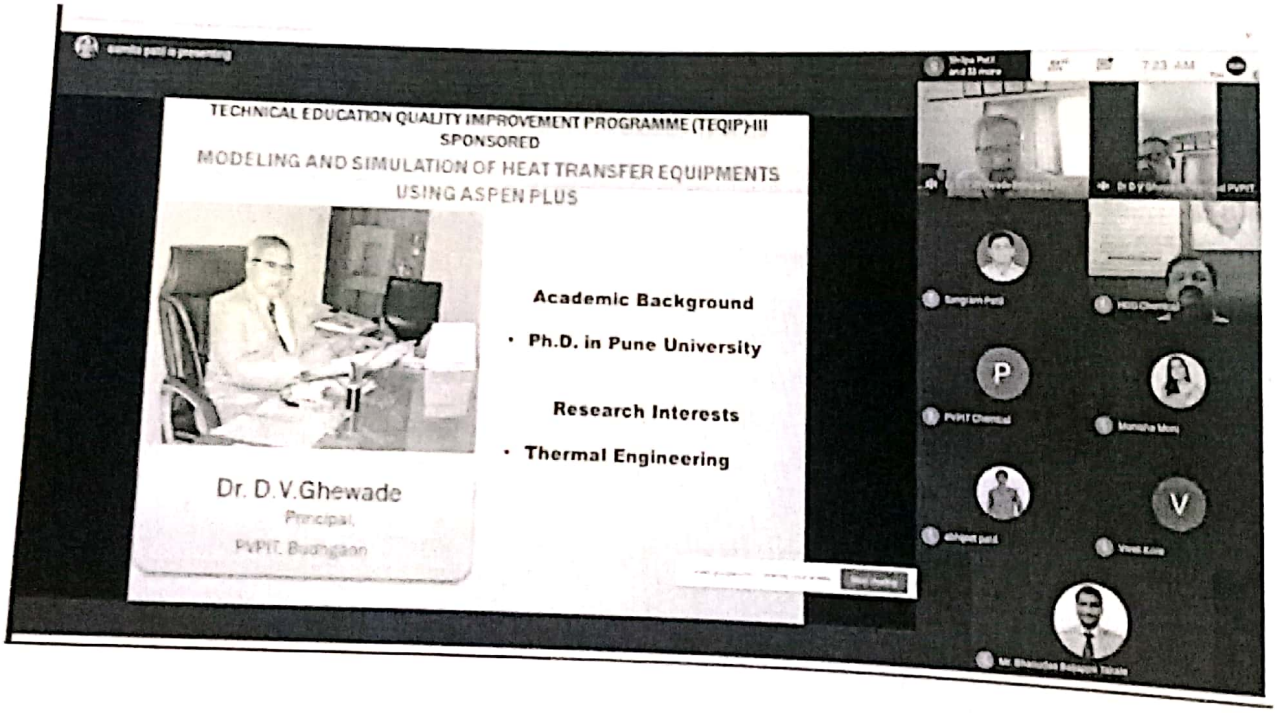


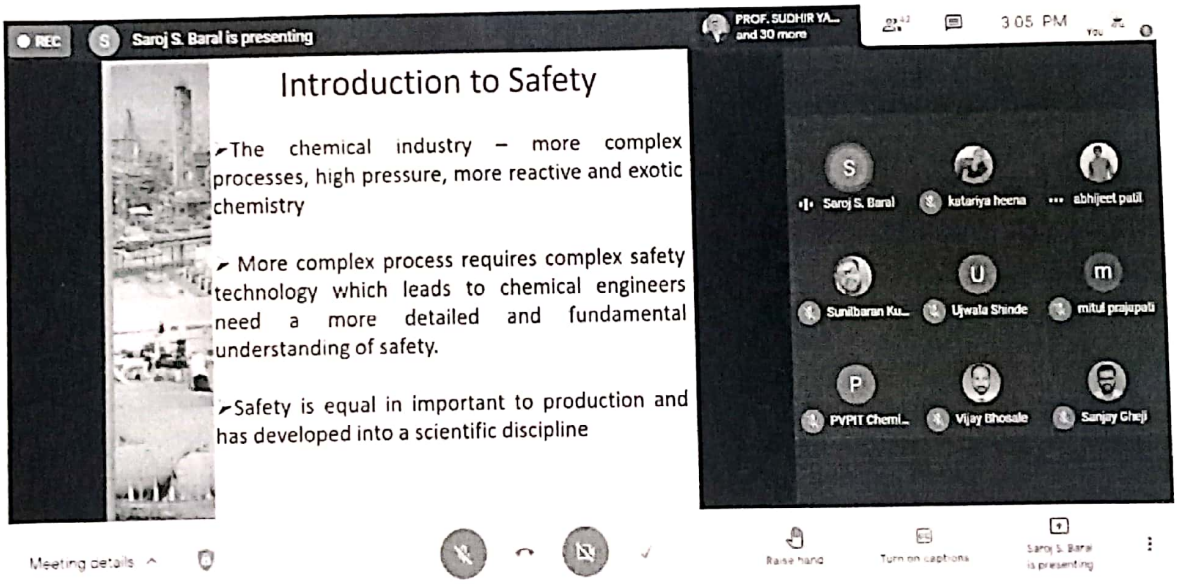
Session -I

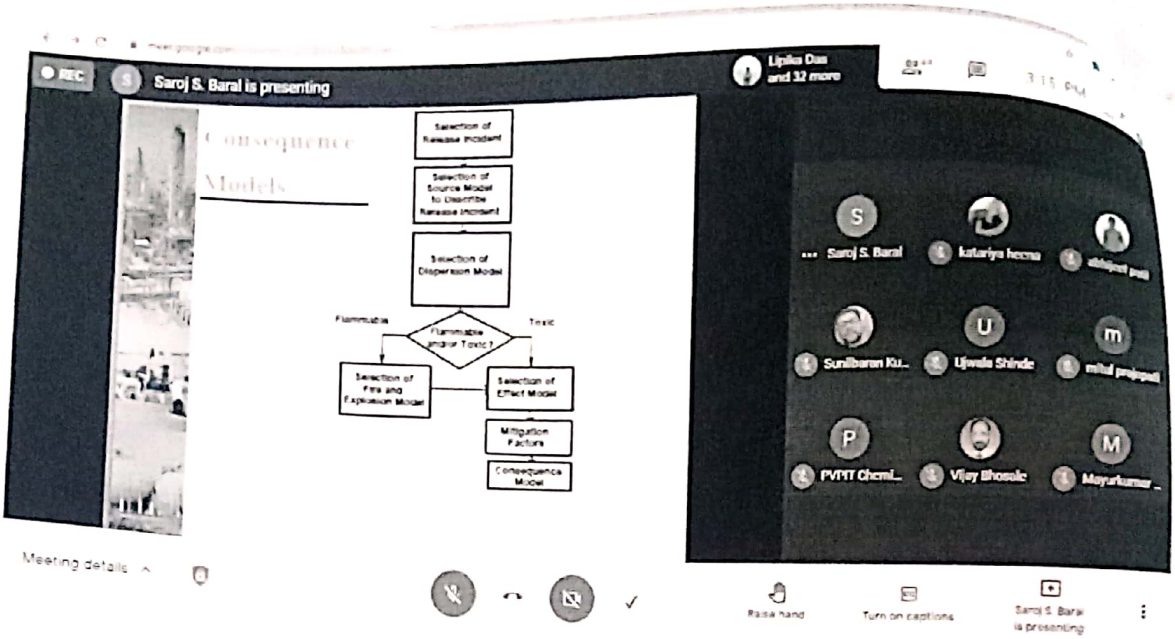
Day: 16-03-2021 **Time: 02:00 pm – 04:00 pm**

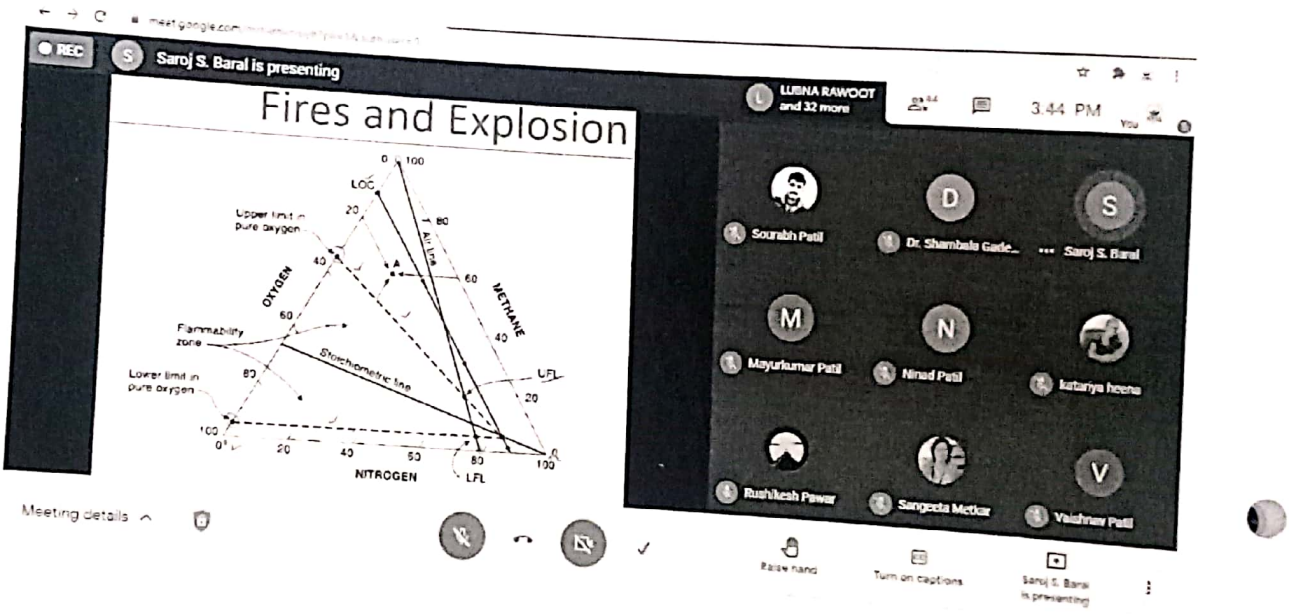
Speaker: Prof. Saroj Sundar Baral, Associate Professor and Head, Department of Chemical Engineering, BITS, Pilani- KK Birla Goa Campus

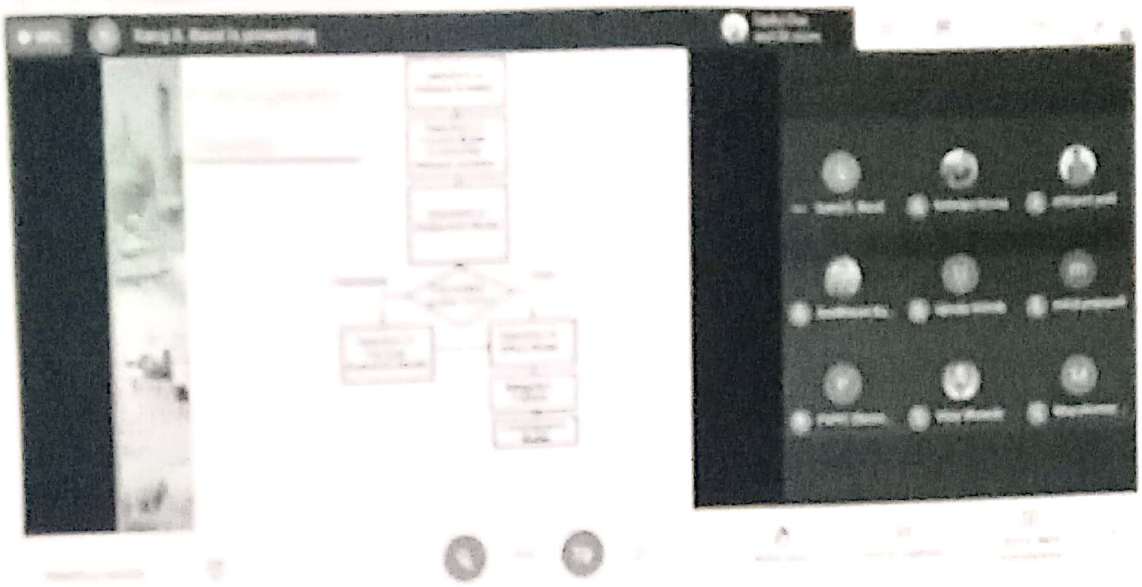
Topic: Fire and Explosion

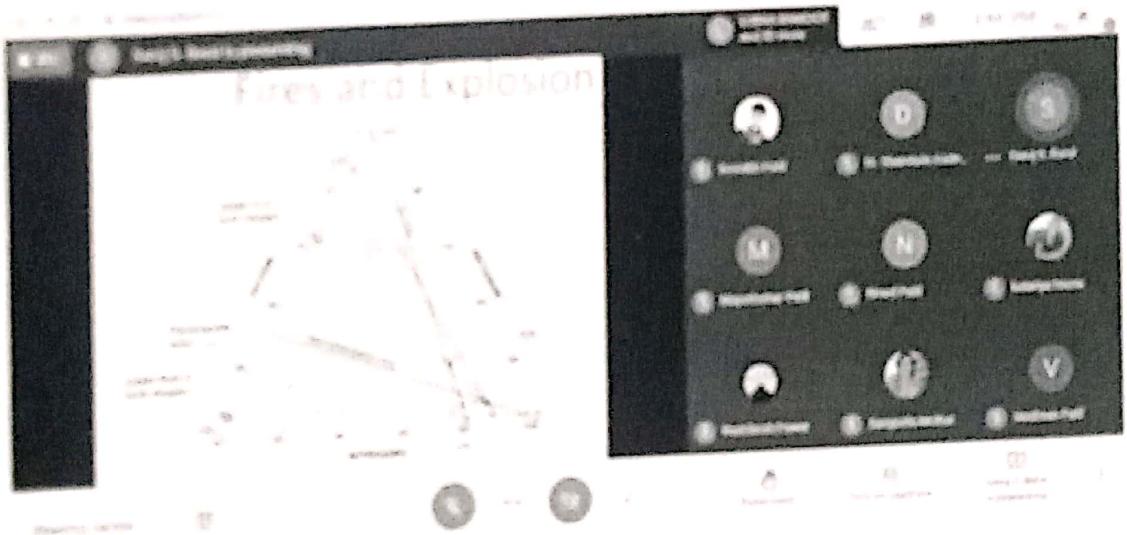
In this session, Prof. Saroj Baral focused on safety in chemical engineering. He explained about fire and explosive properties material, the nature of the fire and explosion, prevention of fire and explosion. He also explained about the engineering ethics, consequence models, fire triangles, different definitions about fire and explosion, and composition about the different components available in that, flammability relationship, flammability limits, estimating flammability. He also explained about the flammability diagram in detail with composition, how to avoid to go in flammable region, unconfined explosions, inerting and purging.











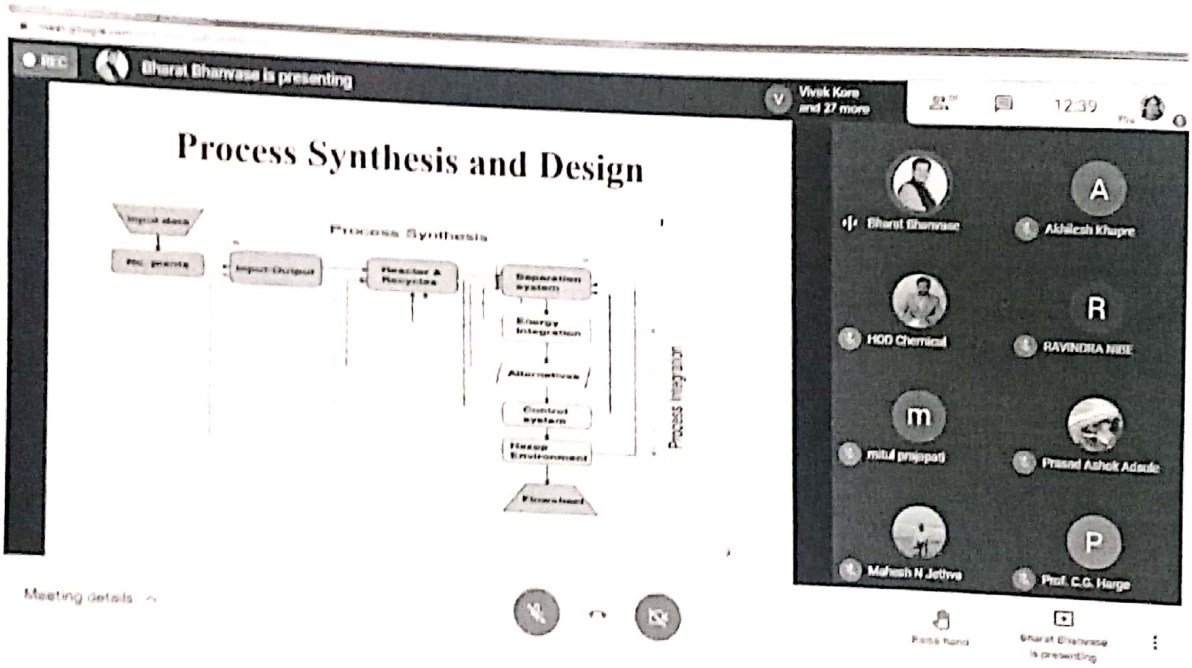
Session -I

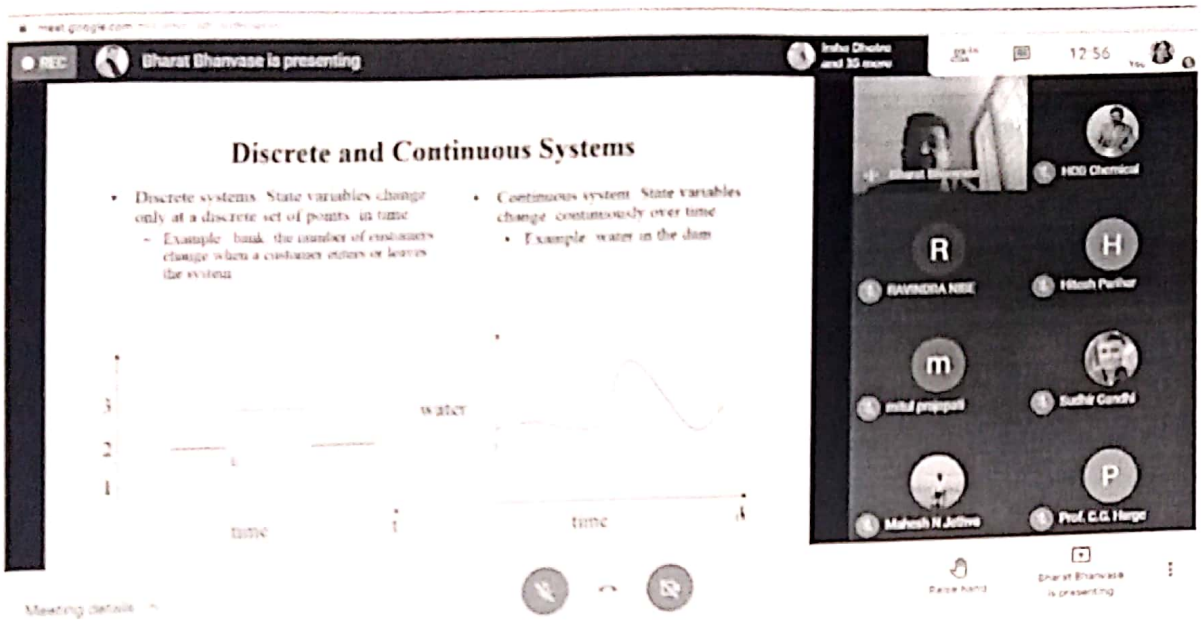
Day: 17-03-2021 **Time: 12:30 pm – 2:30 pm**

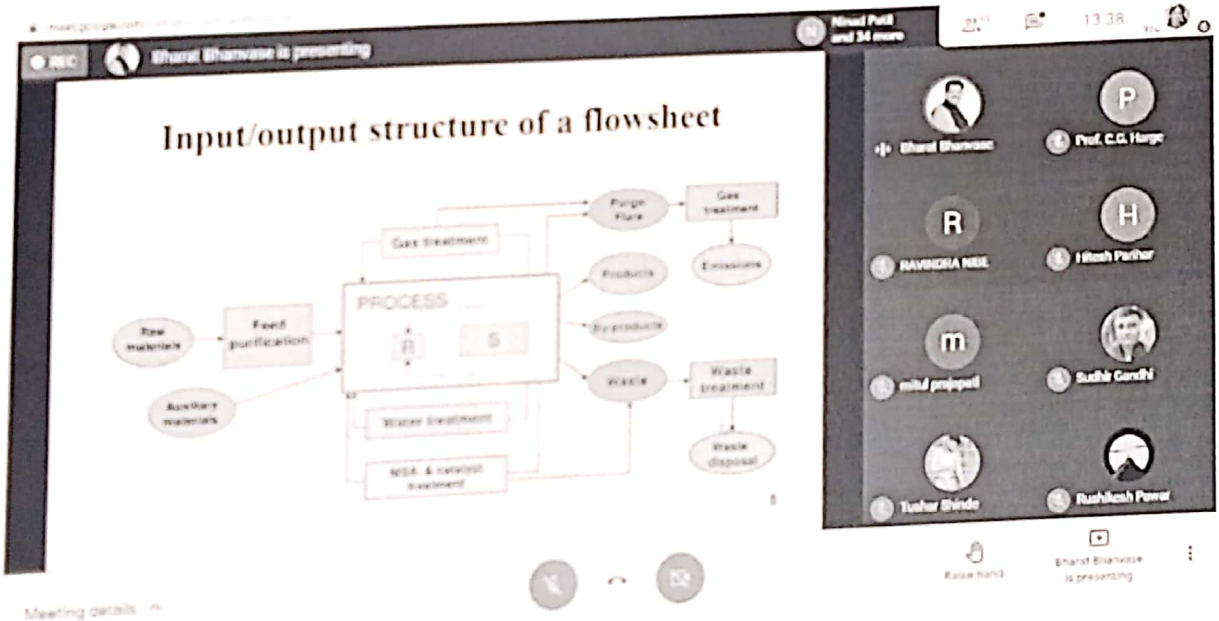
Speaker: Dr. Bharat Bhanvase, Professor and Head, Department of Chemical Engineering, LIT, Nagpur

Topic: Introduction to Simulation and computer aided process engineering

In this lecture Dr. Bharat Bhanvase focused on process engineering. He explained about process synthesis design, modeling, control, simulation, optimization, intensification, identification. He told about what is simulation, when simulation is not appropriate, advantages of simulation, systems environment, different kinds of simulation, different steps in simulation study, different simulation software, process and simulation flow sheets, uses of mathematical models. He also explained about different models and its principle, types of equations, type of problems, errors, numerical solutions, regression analysis, and flow sheet simulation. He well explained about case study.







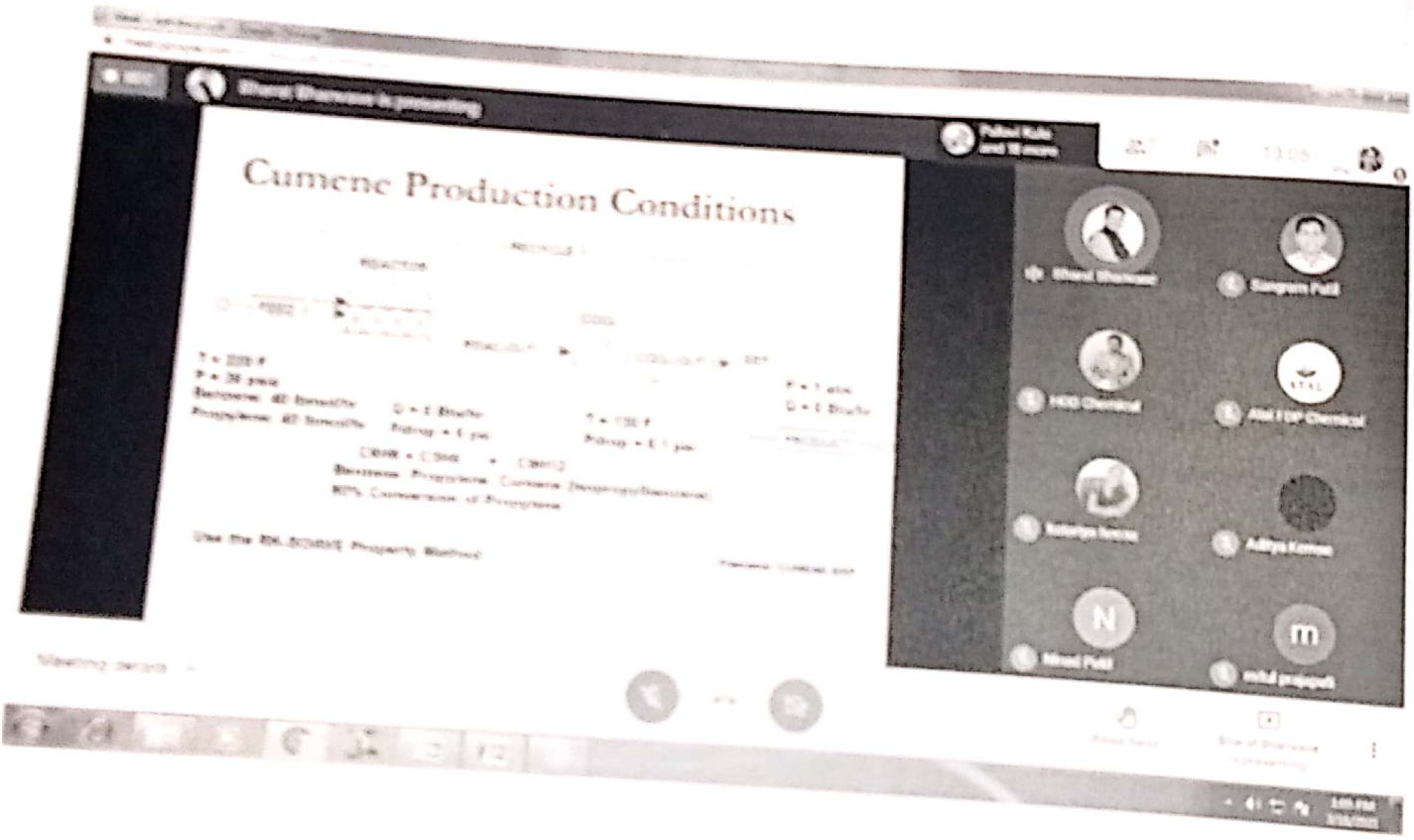
Session -I

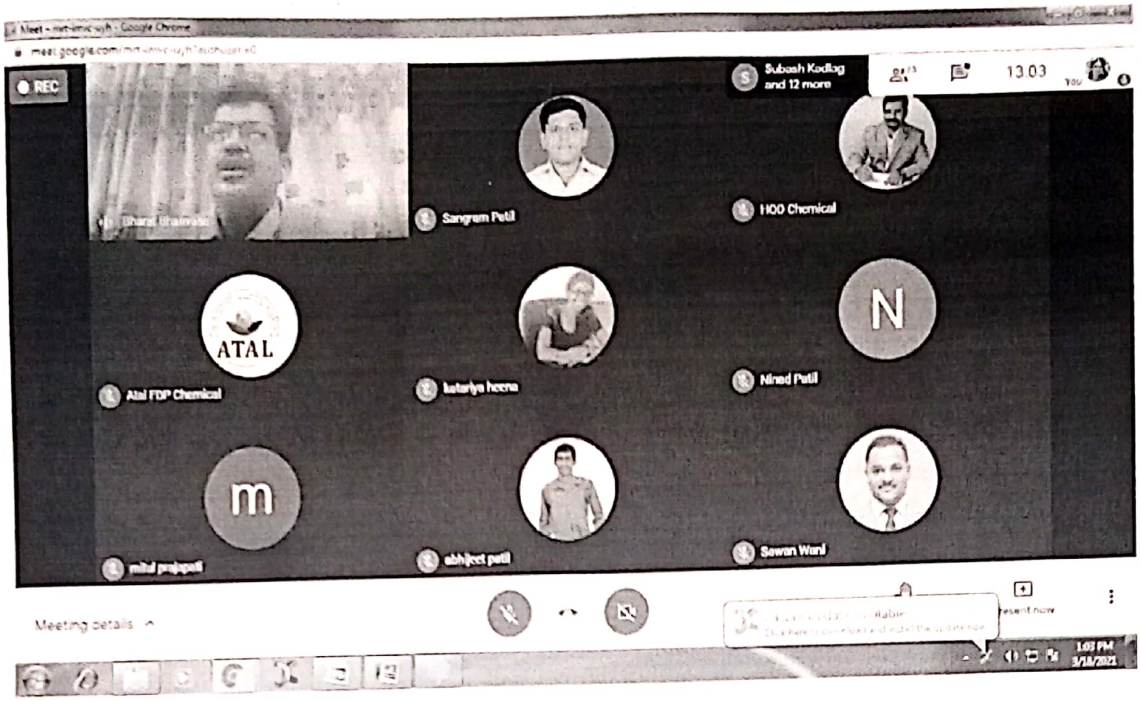
Day: 18-03-2021 **Time: 12:30 pm – 2:30 pm**

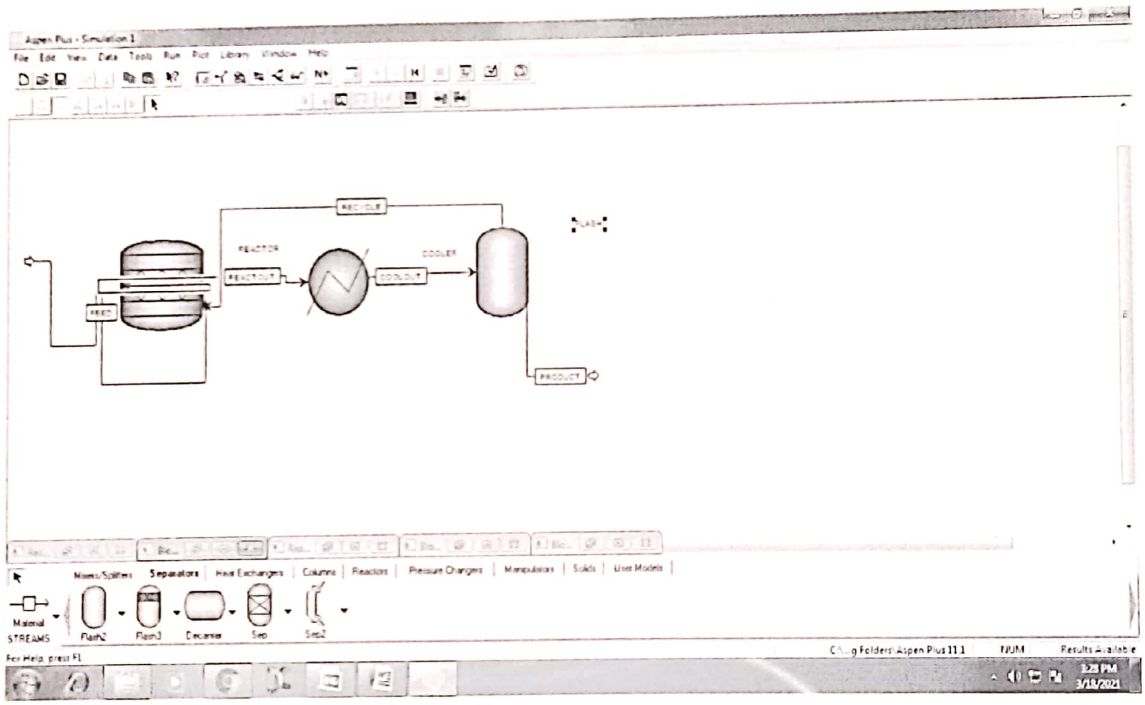
Speaker: Dr. Bharat Bhanvase, Professor and Head, Department of Chemical Engineering, LIT, Nagpur

Topic: Aspen Hands -on

In this lecture Dr. Bharat Bhanvase focused on Cumene Production Process. He started with the introduction of ASPEN Plus software, how to start new file, how to add components, different models information with material stream. He also explained simulation with cumene production with condition. He well resolved participant's errors while simulation and also he explained about results with varying process condition. That was well hands-on session.







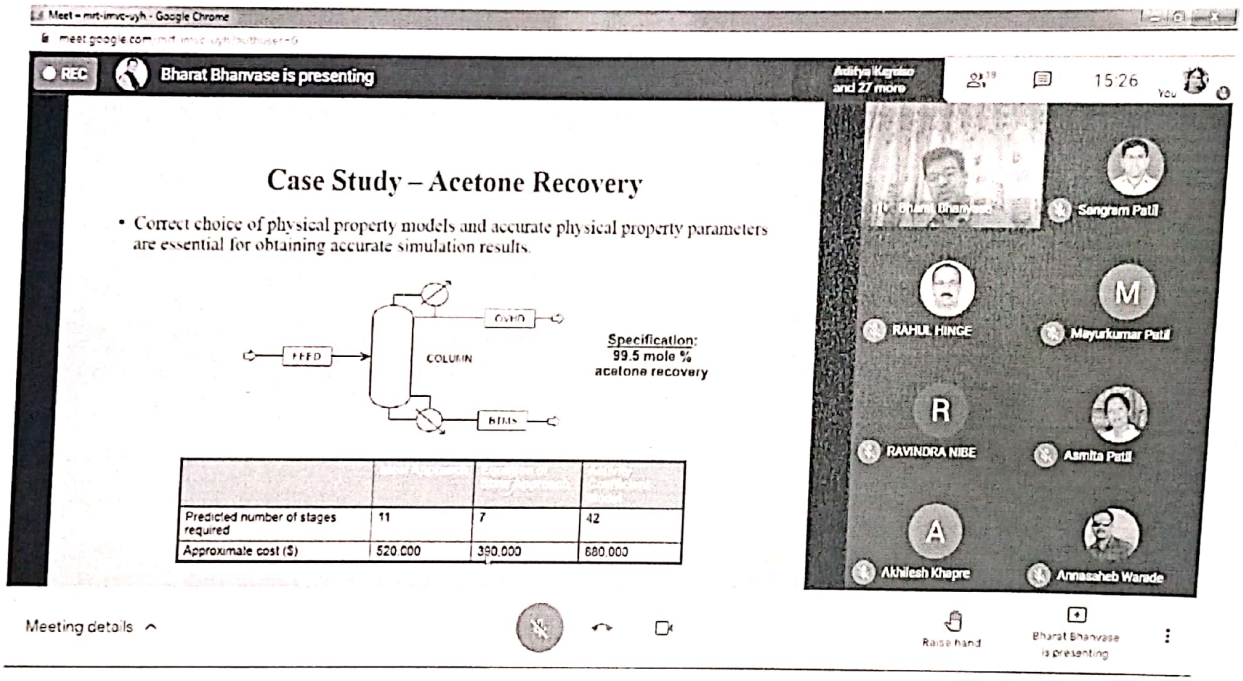
Session -II

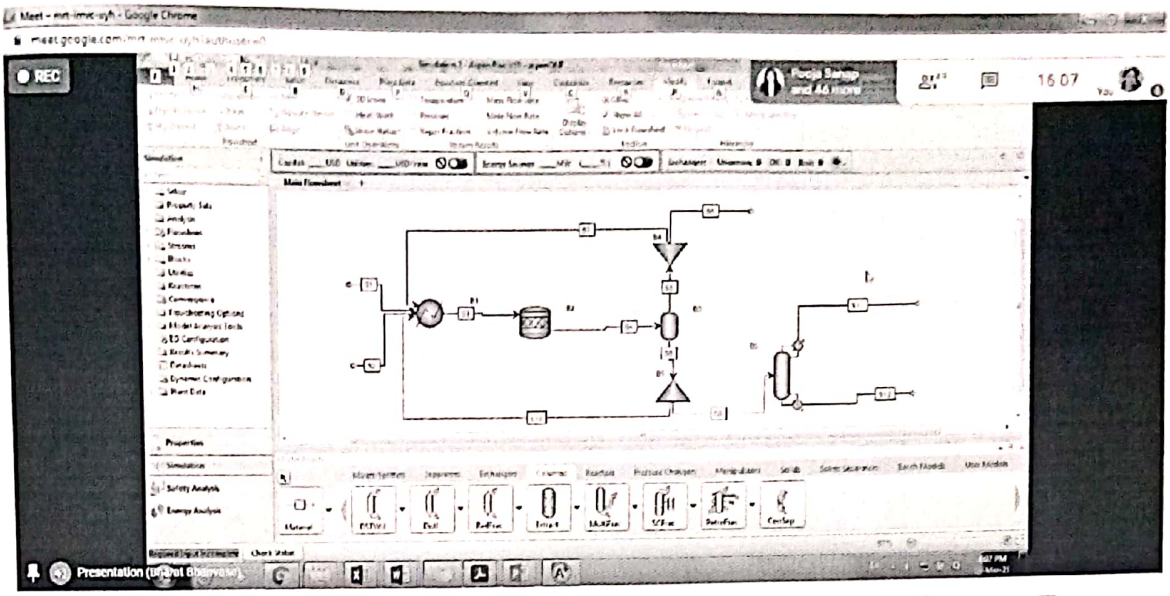
Day: 18-03-2021 **Time: 03:00 pm – 05:00 pm**

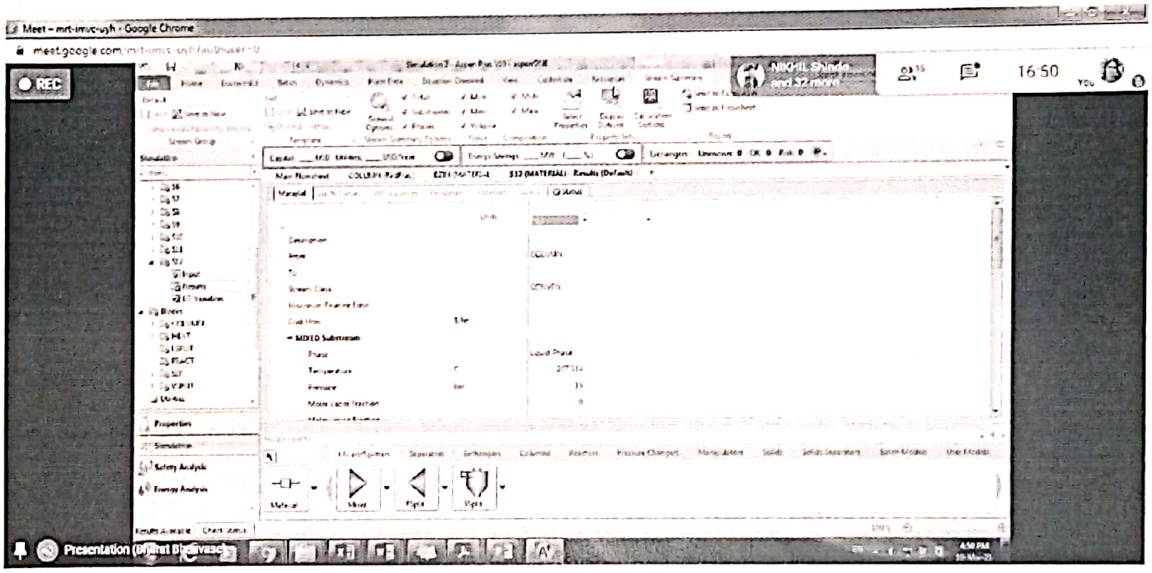
Speaker: Dr. Bharat Bhanvase, Professor and Head, Department of Chemical Engineering, LIT, Nagpur

Topic: Estimation of Physical Properties

In this lecture Dr. Bharat Bhanvase explained about induced property methods, physical property parameters, choice of a property method, and property analysis for reporting physical properties. He covered this point with case study of acetone recovery. He explained about ideal vs non ideal behavior, EOS, activity models, choosing a property method with example, property package, equation of states, activity coefficient methods. He explained through the cyclohexane production process with simulation by using ASPEN PLUS.







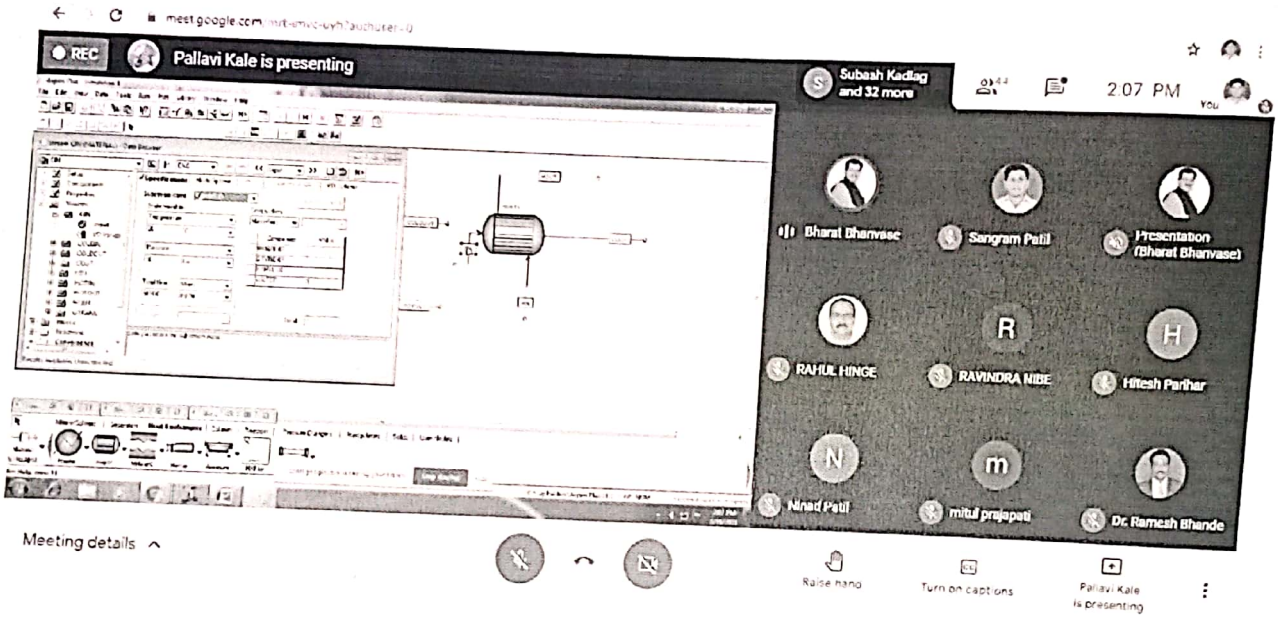
Session -I

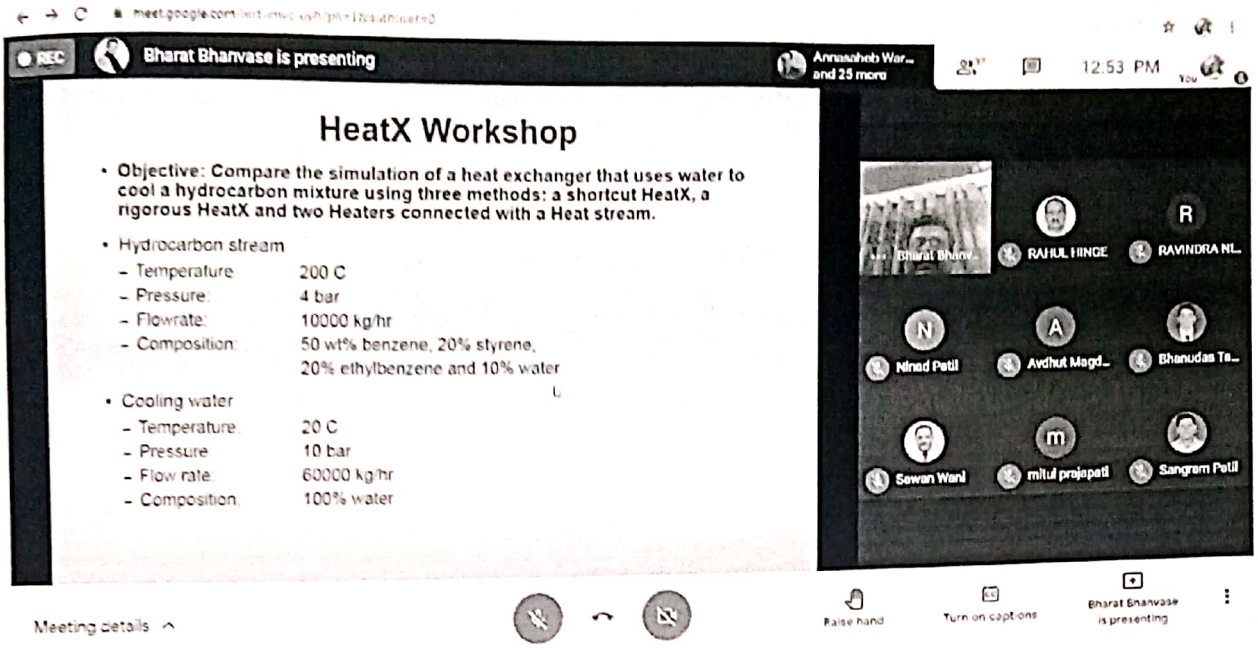
Day: 19-03-2021 **Time: 12:30 pm – 2:30 pm**

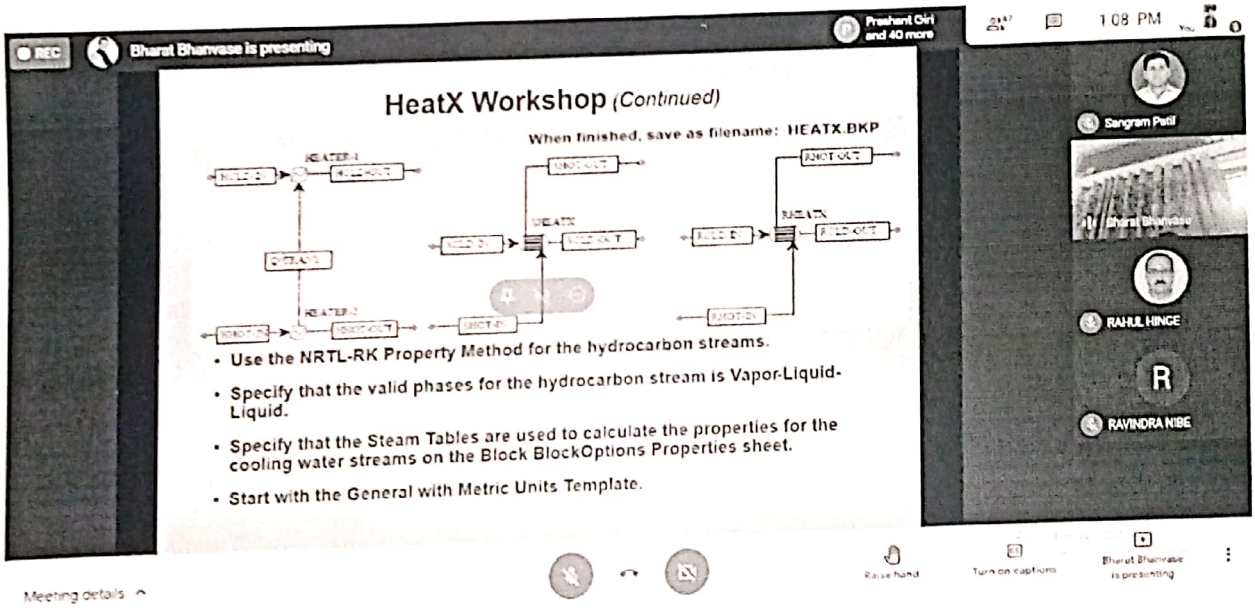
Speaker: Dr. Bharat Bhanvase, Professor and Head, Department of Chemical Engineering, LIT, Nagpur

Topic: Heat Exchangers and Pressure Change Equipments

In this lecture Dr. Bharat Bhanvase focused on unit operation models used for heat exchangers and heaters. He explained about different heat exchanger blocks, working with the heater model, heater input specifications, heat streams, heat curve plot. He explained through simulation by using ASPEN PLUS. In that he told that how to add models in flow sheet, how to add streams, components, input data, composition and how to simulate and check results.







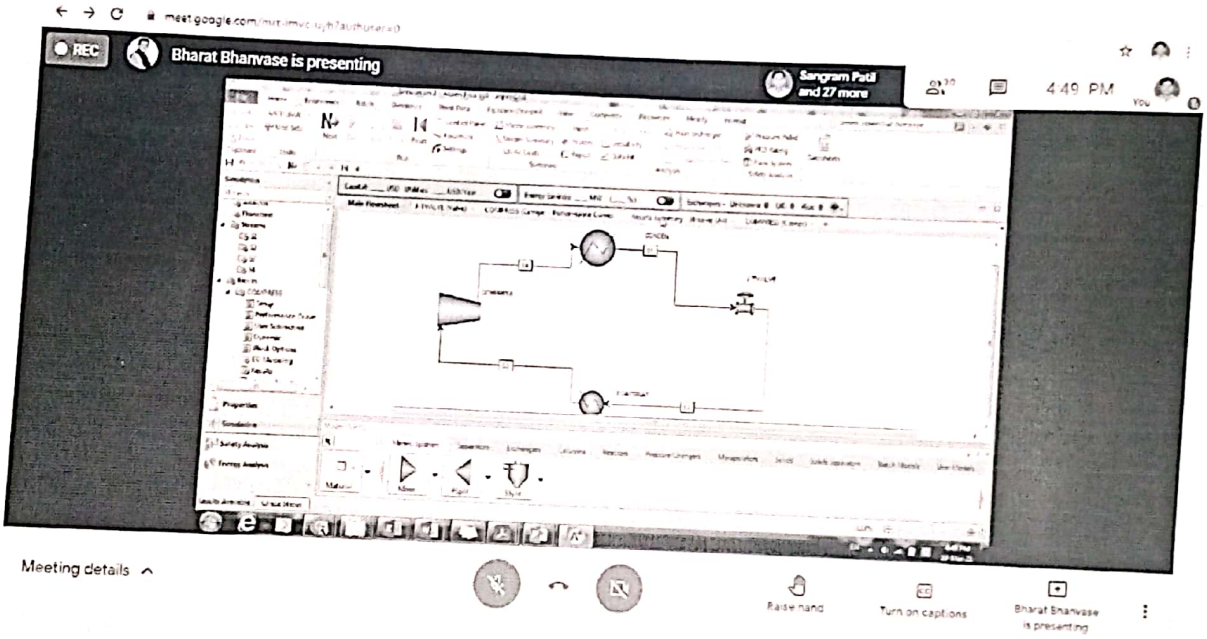
Session -II

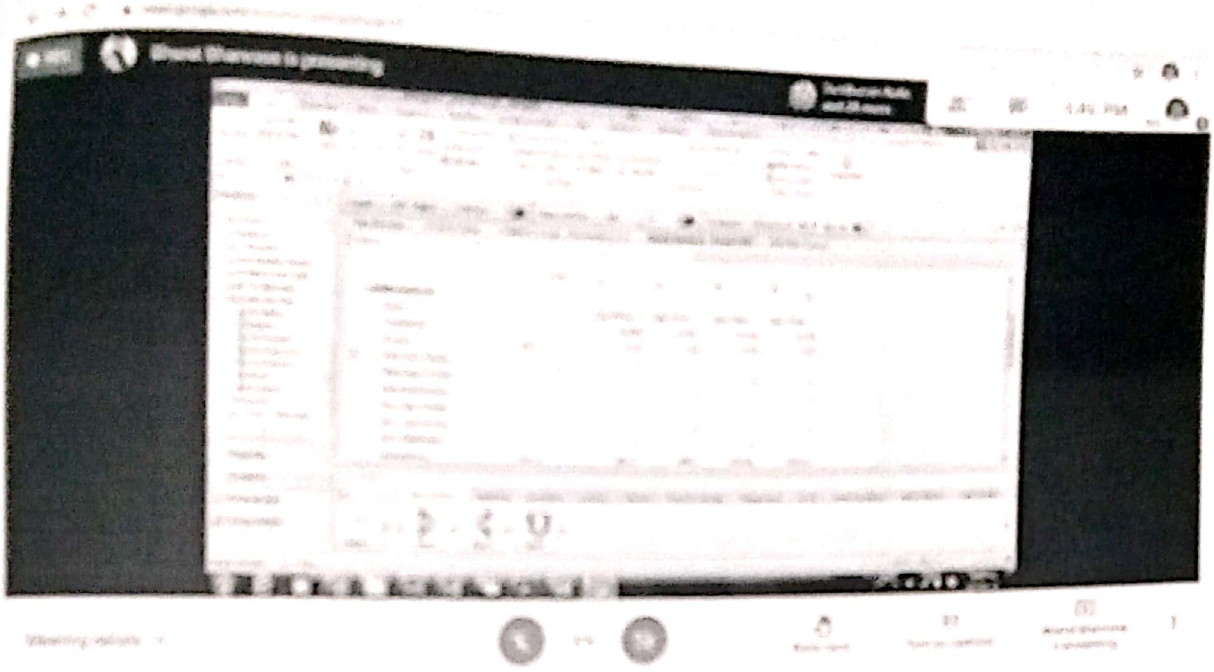
Day: 19-03-2021 **Time: 03:00 pm – 05:00 pm**

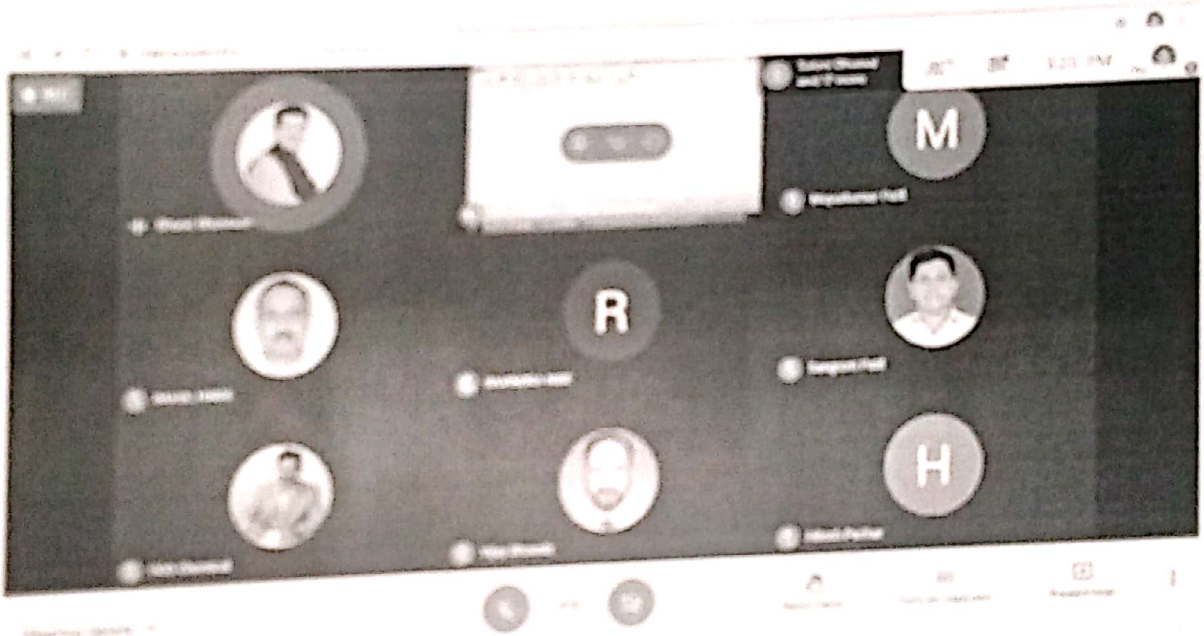
Speaker: Dr. Bharat Bhanvase, Professor and Head, Department of Chemical Engineering, LIT, Nagpur

Topic: Heat Exchangers and Pressure Change Equipments

In this lecture Dr. Bharat Bhanvase focused on ASPEN PLUS simulation by using pure component evaporation system. He explained how to add pure component, different models, thermodynamic model, how to check properties, how to run, how to check result in software.







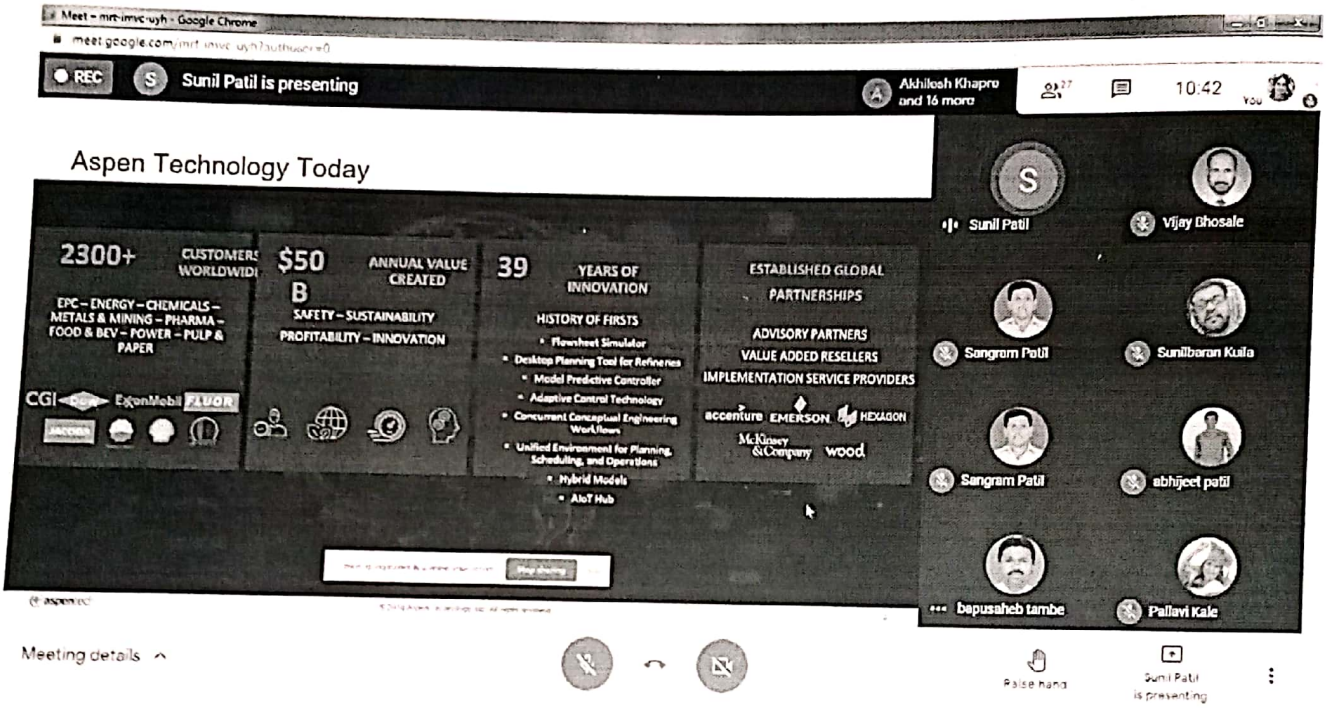
Session -I

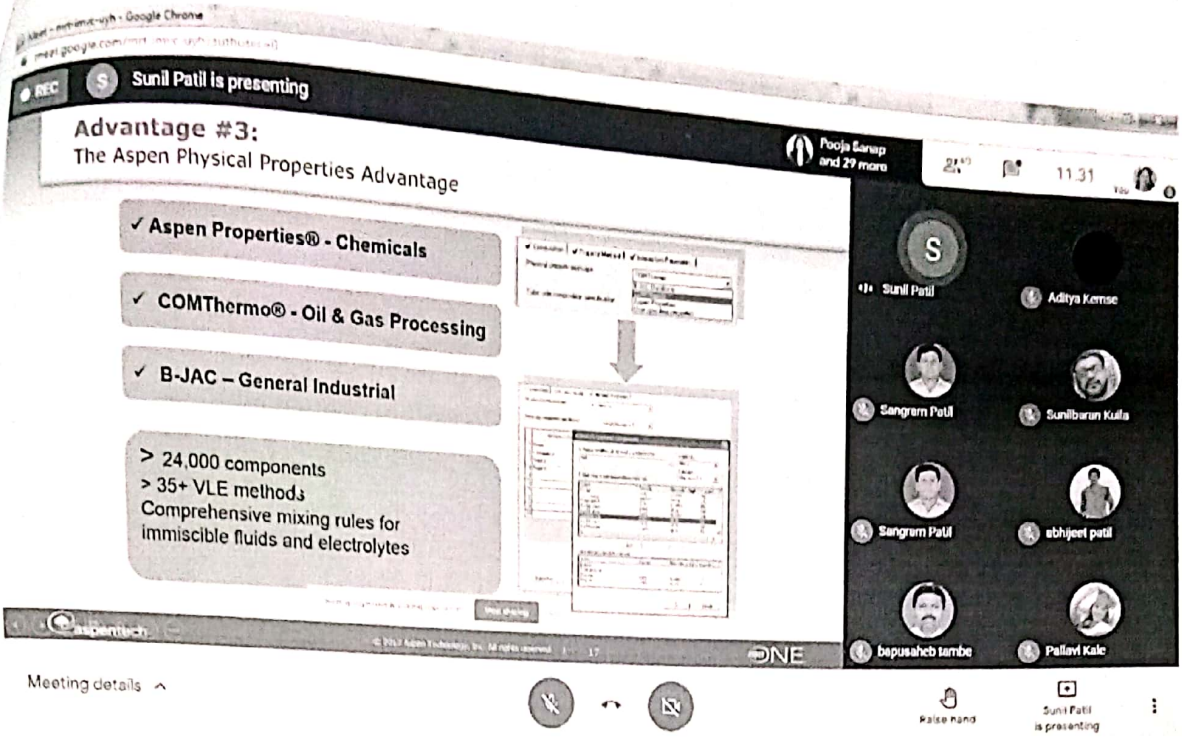
Day: 20-03-2021 **Time: 11:00 am – 01:00 pm**

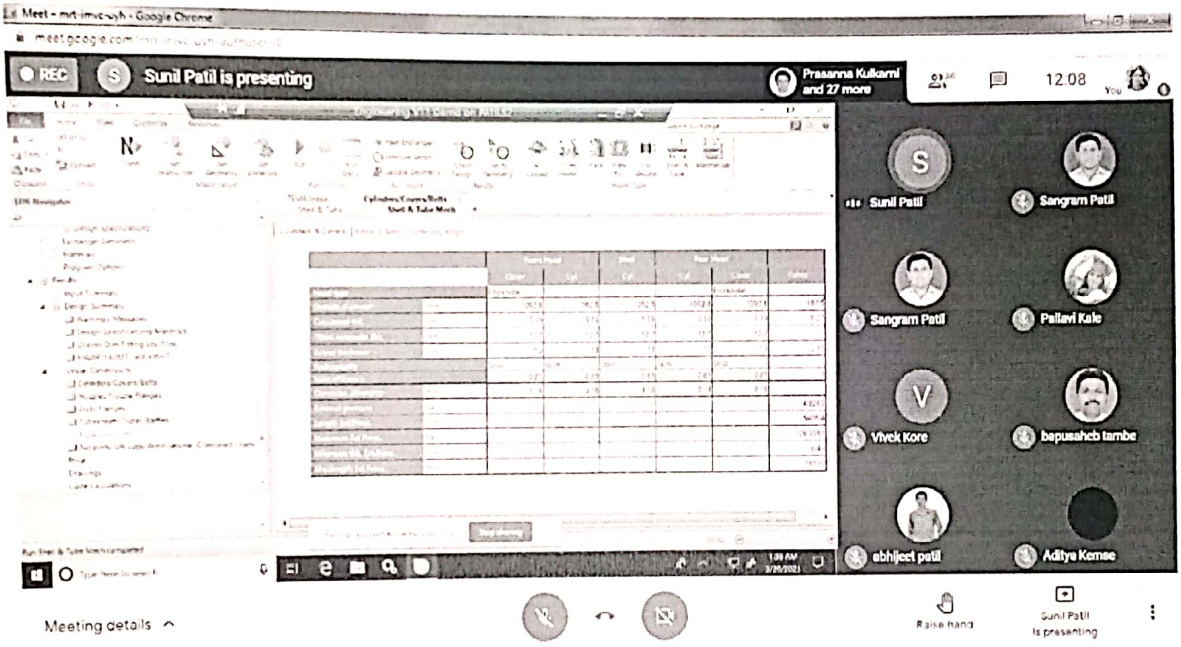
Speaker: Mr. Sunil Patil, Director- Solution consulting, Aspen Technology Inc.

Topic: Modeling and simulation heat exchanger using ASPEN Plus software

In this lecture Mr. Sunil Patil focused on heat exchanger design. He explained about AspenTech introduction, EDR, types of heat exchanger design, design and rating, shell and tube, rate an existing heat exchanger, additional resources, plate exchanger, fin exchanger, fired heater, advantages of aspen. Also he explained about general workflow, shell and tube optimization guide, analysis result with simulation in Aspen plus software.







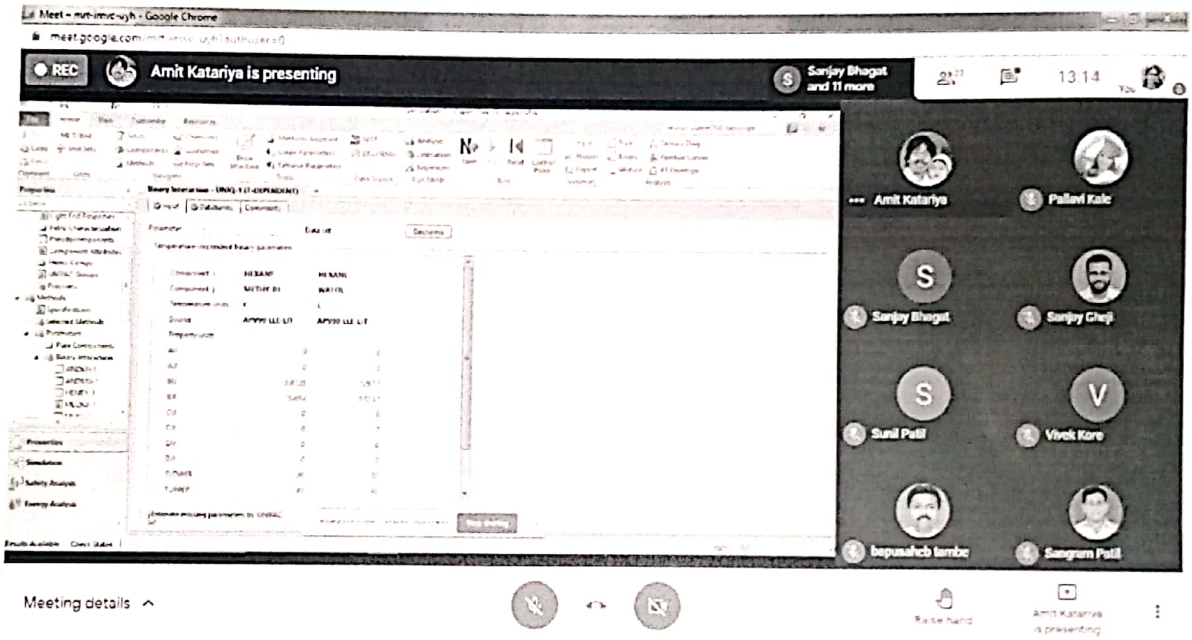
Session -II

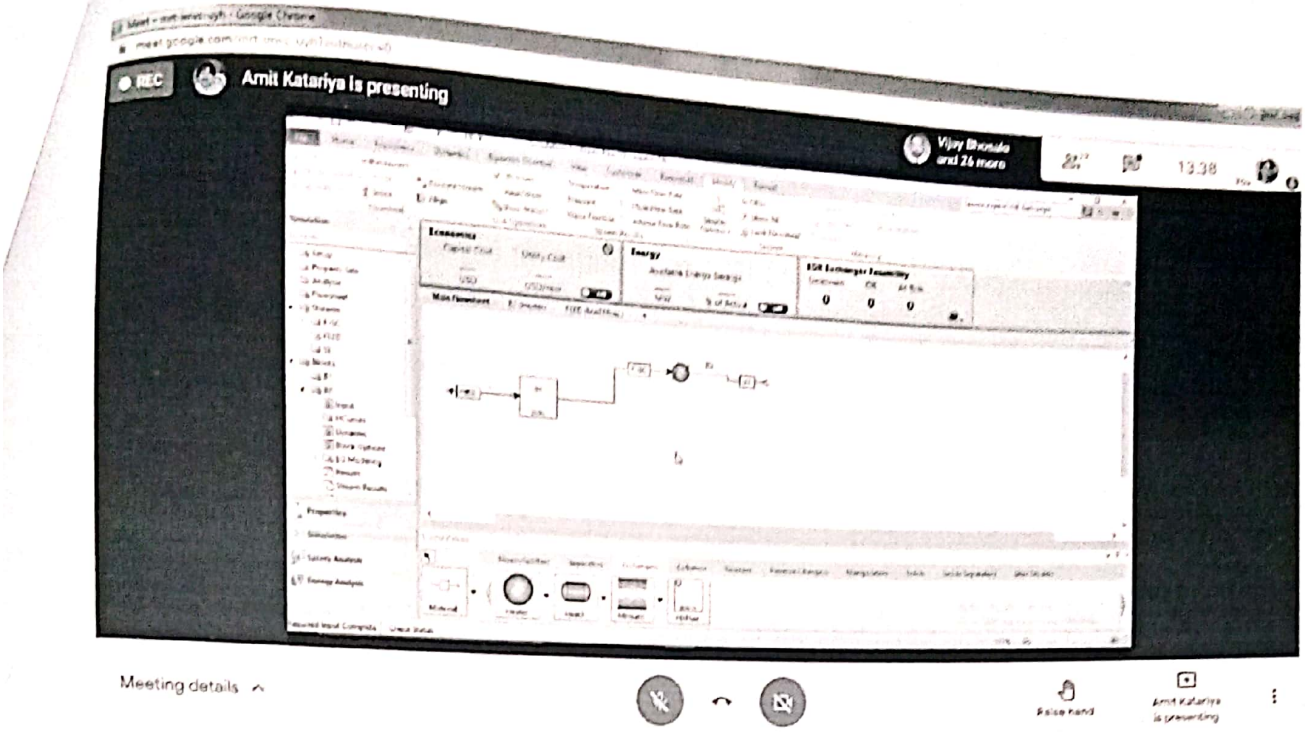
Day: 20-03-2021 **Time: 01:00 pm – 02:30 pm**

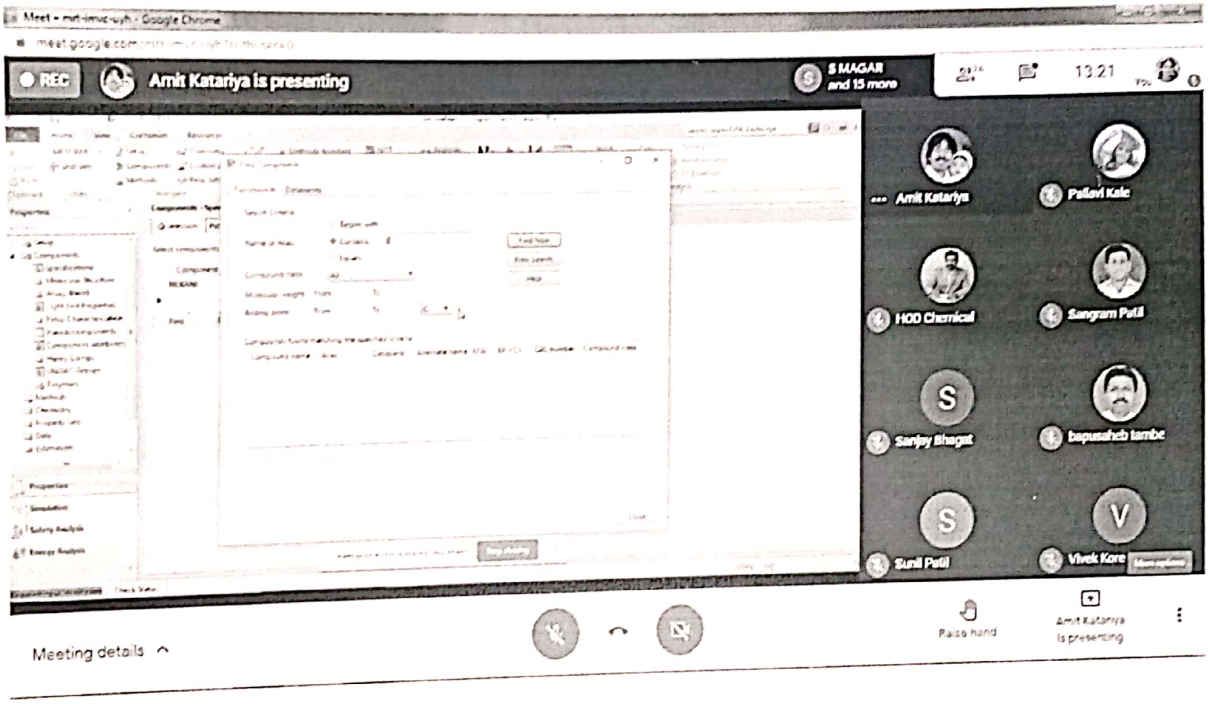
Speaker: Mr. Amit Kataria, Director, Amusavi MTC Private Limited, Pune

Topic: Heat Transfer Equipments in ASPEN PLUS

In this lecture Mr. Amit Kataria focused on energy required for heat transfer, heat exchanger design and simulation. He explained temperature achieved for each system during the heat transfer operation, area required, and utility requirement. He well explained all these factors with example by using different models from Aspen plus like that heat exchanger, distillation column, with result analysis.







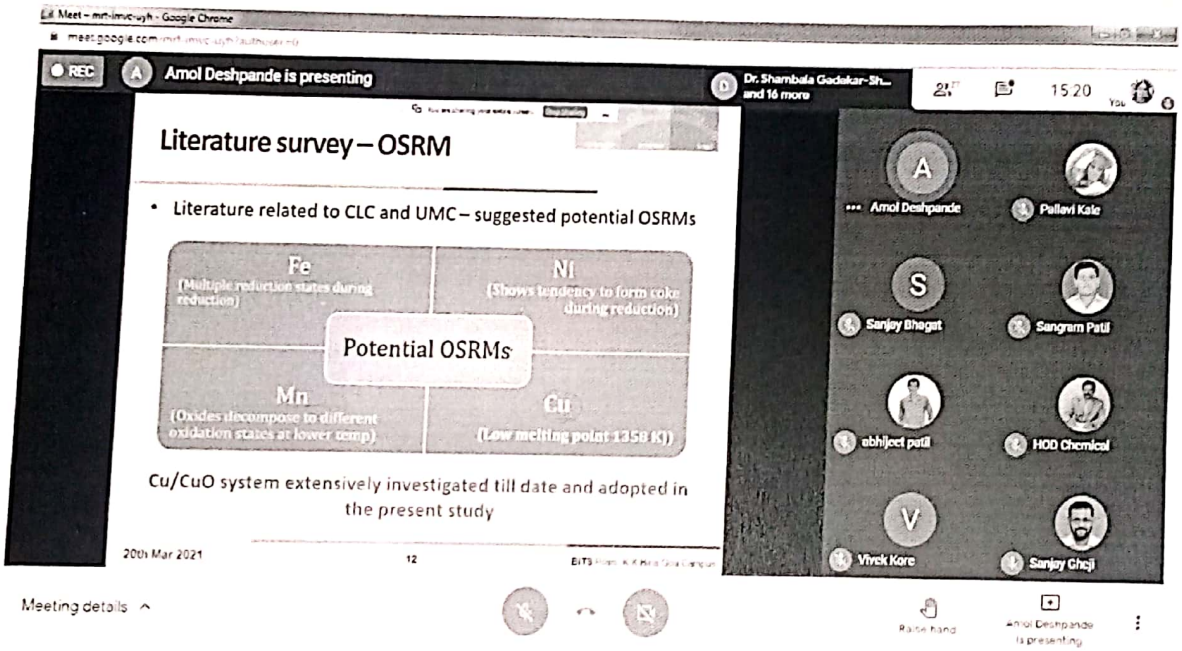
Session -III

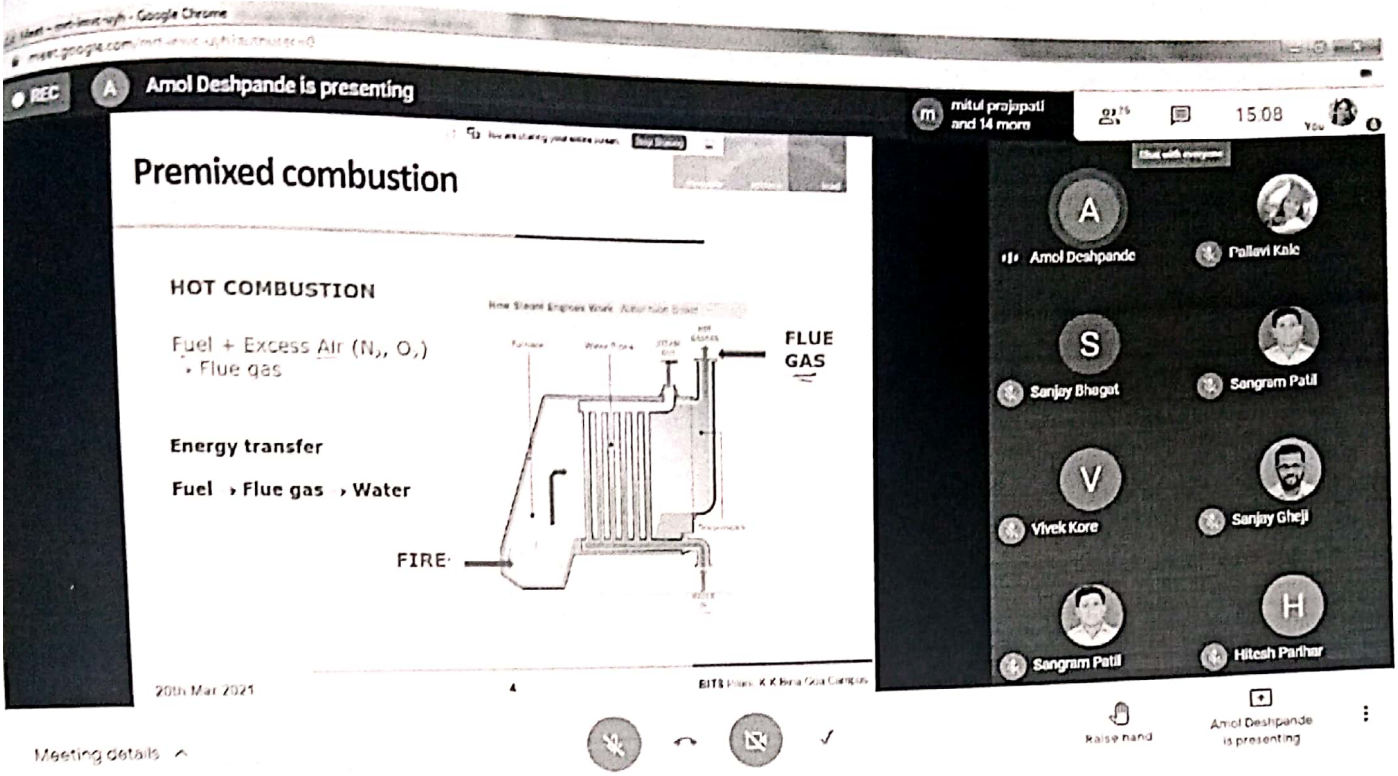
Day: 20-03-2021 **Time: 03:00 pm – 04:30 pm**

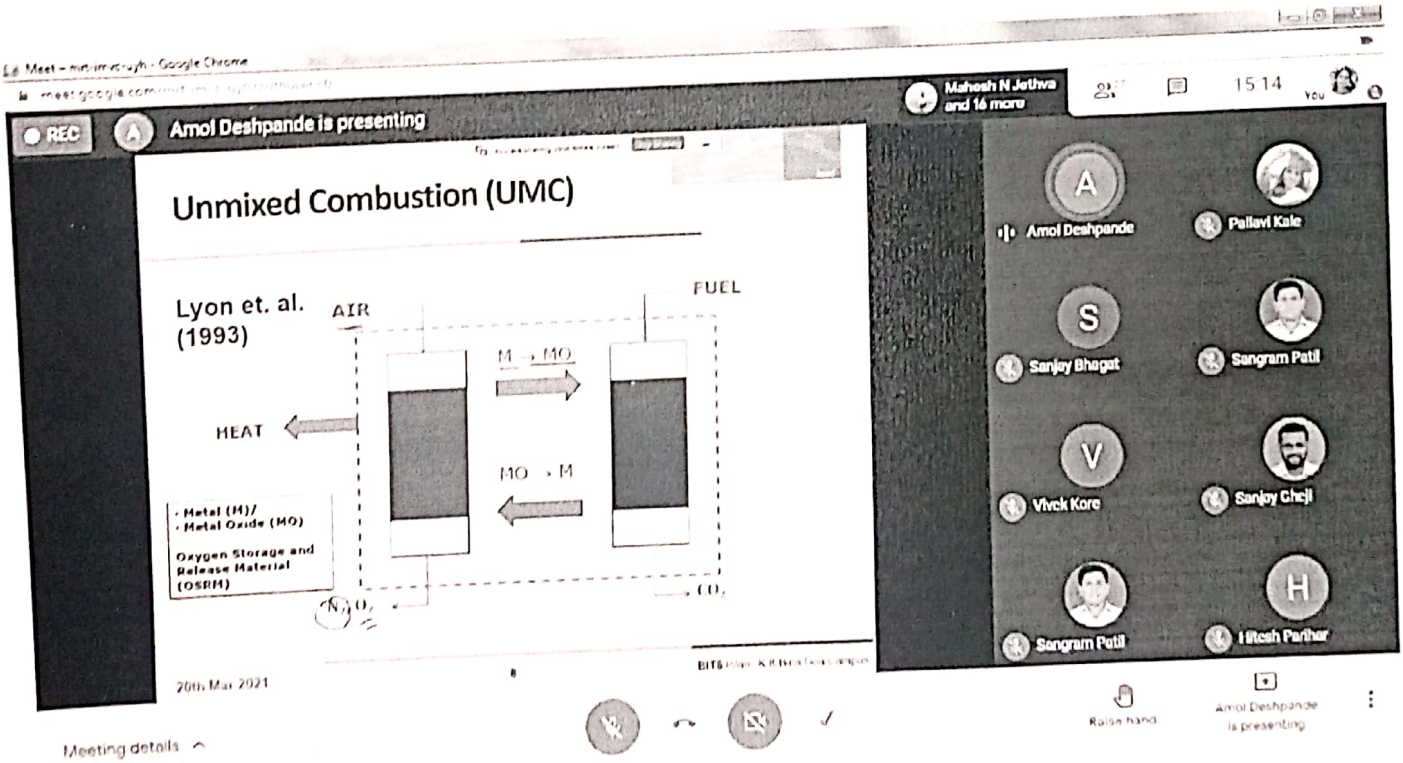
Speaker: Dr. Amol Deshpande, Assistant Professor, Department of chemical Engineering, BITS, Pilani-KK Birla Goa Campus

Topic: Modeling and Simulation: Unmixed Combustion (UMC) Process Equipment for Heat Transfer

In this lecture Dr. Amol Deshpande focused on unmixed combustion process. He also explained about UMC process for heat transfer to air with experimental details, premixed combustion, prevalent issues, potential OSRM's, test rig, data reduction heat transfer calculations, external power supply variation, effect of different parameters like that flow rate; temperature. Also he explained UMC with experimental results, modeling equations.







(Valedictory Function)

In the valedictory session, Dr. S. L. Bhagat, Professor, PVPIT Budhgaon sangli has given the concluding speech on "one week workshop" and he thanked to TEQIP and all resource persons who involved in one week workshop. Prof. S. S. Patil, Assistant professor, Chemical Engineering, PVPIT Budhgaon, Sangli, has given vote of thanks and concluded the workshop. The test on workshop was conducted for all the participants on online mode. Feedback was collected from all participants from Google form.