

Indore Institute of Science and Technology

Activity Report

Academic Year - 2019-20

Session: Jan - June 20

Name of Event: Faculty Development Prog. (Guest Lecture/Seminar/Workshop)

Date of Event: 29/06/20, Topic: "Process Design Engineering oil & gas"

Organizing Dept.: CHEMICAL, Event Coordinator: Dr. Samatha Singh
Ms. Farhin Khan

Name of Partner / co-organizer (If Industry is involved): _____

Address: _____

Contact No.: _____, Email Id: _____

Name of Industry Representative: _____

Contact No.: _____, Email Id: _____

Name of Expert/Guest: Mr. Rohit Ghai

Institute / Company: Honeywell, Pune.

Designation: Sr. Process Engg., Department: _____

Address: Pune.

Contact No.: 9646183017, Email Id: _____

Details of Participants:

No. of Institutes Participated	No. of Students Participated	Department	No. of Industry Representative	Remark if any
		CSE/IT/EC/ME/CM/ESH		
<u>01</u>	<u>02</u>	<u>CM</u>		

*Please enclose a detailed list.

Also enclosed following details:

1. Approval Letter
2. Invitation card/Brochure / Leaflet (if printed by Institute or Organizing Partner) print/Social
3. Detailed summary on event. (Outcome)
4. Media Report (attach copy of newspaper)/ write-up for media/ FB write-up
5. Certificate / Letter (if printed by Institute or Organizing Partner)

HOD

Principal



DATE:21/06/2020

Approval Letter

Department of Chemical Engineering interested to organize FACULTY DEVELOPMENT PROGRAM (FDP) on **Process Design Engineering Oil & Gas** from 29 June 2020 to 01 July 2020. Kindly approve for organizing the FDP in the department.

Proposal and Budget enclosed herewith.



HOD CM



PRINCIPAL



DATE: 21/06/2020

NOTICE

This is to inform you that Department of Chemical Engineering is going to organize faculty development program on **Process Design Engineering Oil & Gas** conducted by IIST CM Department from 29 June 2020 to 01 July 2020. All the faculties of chemical engineering dept. will have to participate actively in this event so that you will get benefits from that event. The event will be held online using Zoom application . To register for this event kindly contact to following coordinators for confirmation for your presence:

Faculty Coordinators:

- a) Samatha Singh

So, I invite all the interested faculties to attend/participate the FDP and get the advantages.

HOD CM





Indore Institute of Science & Technology, Indore

IIST/Circular/ 2020-21

Dt. 20/06/2020

CIRCULAR

This is to inform you that a FDP on **Process Design Engineering Oil & Gas** will be organized on 29 June 2020 to 01 July 2020 at online through Zoom application. Faculty members are requested to register and participate in it. For Further Information: Please contact coordinators for confirmation for your presence.

Faculty Coordinator

a) Samatha Singh, Head CM department

So, I invite all the interested faculty members to attend the FDP to get all advantages.

PRINCIPAL

Copy To:

All the HODs (To be circulated among all department and faculty members)

Department of Chemical Engineering

Organizing

Three Days Faculty Development Program(FDP)

on

“Process Design Engineering: Oil & Gas”

In association with



Engineering Design & Power Training Institute, Delhi

From

29th June 2020 to 1st July 2020

Faculty Coordinators

Mrs. Samatha Singh
Head of Dept. (9165359797)

Ms. Farhin Khan
Assistant Professor (7987578527)

For Online Registration please visit www.indoreinstitute.com

IIST Campus, Opp. IIM(Indore), Rau-Pithampur Road, Rau, Indore 453331(MP)
v.indoreinstitute.com | info@indoreinstitute.com | www.facebook.com/IISTcollegeindore/
Toll Free: 1800 103 3069 | 822 407 1000/2000 / 822 507 2000/3000



Rohit Ghai

Senior Manager OPEX Saurav Chemicals
Chandigarh

Summary

I am very ambitious person always on the urge of learning something new. In my one year of industrial experience I learnt how to handle Furnace, Heat Exchangers, Pumps, Compressors, Reactors, Absorbers and Strippers other than this I learnt how to handle people which is more difficult than handling machines because machines don't have brain.

I am a sports enthusiast right from my childhood love to play all kind of sports.

Other than games I love travelling which gives me scope to learn something new by interact with different people.

I constantly derive motivation from my surroundings. For me the strongest motivation has been my friends what ever I have achieved till now is because of them.

Experience

Saurav Chemicals Limited
Senior Manager
June 2021 - Present (1 year 1 month)
Chandigarh, India
Head Operation excellence Department

Jubliant ingrevia
Deputy Manager
May 2018 - July 2021 (3 years 3 months)
Noida, Uttar Pradesh, India
Project management and Business excellence



Lupin
Process Engineer
November 2015 - May 2018 (2 years 7 months)

1. Erection and commissioning of Heat exchanger for Reverse osmosis plant.
2. Mass balance of plant
3. Data Sheets preparation
4. Utility load calculations.
5. Pump calculations
6. Contractor bill checking , Negotiation with vendor
7. Developing of new technology for replacement of high operating cost equipment.
8. Opex calculation of plant
9. Aspirator replacement with diffusion aeration
10. Working experience on Auto-cad.
11. Cost saving projects of saving steam and power in plant.
12. Working on Multi effect evaporator.
13. Designing of heat exchangers, pumps and other plant equipment's
14. Line Sizing calculations
15. Pressure drop calculations of lines (hydraulic calculations).
16. Pumps commissioning.
17. Final inspection of lines, equipment's, instruments.
18. Flushing activities
19. Commissioning activities.
20. Control valves commissioning
21. Pumps designing (Npsh, head of pump, Flow rate of pump)
22. PI&D and PFD preparation
23. Mass balance calculations of MEE AND ATFD plant.
24. Heat Balance of EVAPORATORS.
25. Heat integration project
26. Troubleshooting in plant
27. Good knowledge about the interlocks of the plant.
28. Distillation column designing.
29. Pumps calculations(M.H.P,B.H.P.,W.H.P.,HEAD)
30. HAC OF ETP PLANT
31. Hazop study of ETP plant
32. First aid user and trainer in plant

Greentec Pvt Limited

Project Engineer

October 2014 - November 2015 (1 year 2 months)

HMEL REFINERY ,BHATINDA
SUMMER TRAINEE



May 2012 - November 2012 (7 months)

MAJOR PROJECT:

Worked on a project of optimization of fired heater in HMEL REFINERY and also of increasing the efficiency of fired heater from 67% to 75%.

Designed a "CRUDE DISTILLATION COLUMN BY USING ASPEN HYSYS SOFTWARE" in refinery

MINOR PROJECT:

- Worked on pressure drop and line sizing calculations of Mundra to Bhatinda pipeline supplying crude oil to bhatinda in HMEL REFINERY.
- Prepared a report on how we can have safe and quick start up of CRUDE DISTILLATION UNIT in refinery.
- Worked on the pump power calculations(whp,bhp,mhp) and also prepared a report on optimization of pump operations .
- Have knowledge about the process lines pre- testing or prestartup procedure(steam test,air test).
- Have knowledge about the hydrotesting procedure of exchangers.
- Have knowledge of change over of critical pumps(Vacuum Residue pumps)

Equipments Handled & Designed

- Heat Exchangers and Furnaces.
- Pumps
- Distillation columns .

Equipments Optimized:

- Distillation column.
- Fired heater.
- Centrifugal pumps.



Education

Shaheed Bhagat Singh College

Bachelor's degree, Chemical Engineering · (2009 - 2013)

EDPTI

Process designing, Industrial and Product Design · (2014 - 2014)



IIST is proud to extend it's Heartiest
CONGRATULATIONS!!



To our Chemical Engineering Faculties for successful completion of
Faculty Training Program

in association with

Engineering Design & Power Training Institute, Delhi
on

**“Basic Process Design; Pinch Technology using Aspen
Plus, Aspen HYSYS & Aspen EDR”**



CERTIFICATE OF COMPLETION



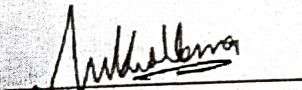
This Certificate Is Presented to

Prashant Kumbhkar

for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1021


Training Incharge




Assessment Manager



CERTIFICATE OF COMPLETION

This Certificate Is Presented to

Rahul Bhargava

for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1022


Training Incharge




Assessment Manager



CERTIFICATE OF COMPLETION



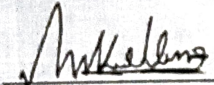
This Certificate Is Presented to

Rahul Gupta

for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1024


Training Incharge




Assessment Manager



CERTIFICATE OF COMPLETION

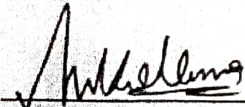
This Certificate Is Presented to

Samatha Singh

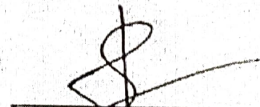
for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1023


Training Incharge




Assessment Manager

Department of Chemical Engineering
Indore Institute of Science & Technology, Indore

Event Summary





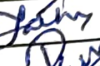





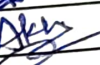











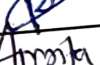













Department of Chemical Engineering, Indore Institute of Science & Technology has successfully organized faculty development program on **Process Design Engineering Oil & Gas** from 29 June 2020 to 01 July 2020. Mr. Rohit Ghai was the expert of the training, he taught faculties that how to solve various chemical engineering problems using ASPEN PLUS software.

Samatha Singh
Head



INDORE INSTITUTE OF SCIENCE & TECHNOLOGY
DEPARTMENT OF CHEMICAL ENGINEERING

Attendance of FDP on Process Design Engineering Oil& Gas

		Day-1	Day-2	Day-3
1	MRS. SAMATHA SINGH			
2	MR RAHUL GUPTA			
3	MR FARHIN KHAN			
4	MR PANKAJ KUMAR			
5	MR RAHUL BHARGAV			
6	ARSHIA KHAN			
7	PANKAJ MALVIYA			
8	MR SHIVENDU SAXENA			
9	MR SHIVRAJ CHANDEL			
10	MR PRASHANT KUMBHKAR			
11	MR PRATIK KADAMBARI			
12	AMRITA			



DATE: 18/05/2020

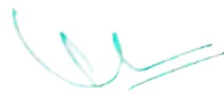
Approval Letter

Department of Chemical Engineering interested to organize webinar on **Impact of Covid-19 on Chemical Industries & How to Secure Your Future Through Gate** on 21/05/2020. Kindly approve for organizing the webinar in the department.

Proposal enclosed herewith.



HOD CM



PRINCIPAL

DATE: 18/05/2020

NOTICE

This is to inform you that Department of Chemical Engineering is going to organize webinar on **Impact of Covid-19 on Chemical Industries & How to Secure Your Future Through Gate** on 21/05/2020. All the students of chemical engineering dept. will have to participate actively in this event so that you will get benefits from that event. The event will be held online using Zoom application. To register for this webinar, kindly contact to following coordinators for confirmation for your presence:

Faculty Coordinators:

- a) Samatha Singh

So, I invite all the interested faculties to attend/participate the webinar and get the advantages.



HOD CM



Indore Institute of
Science and Technology

Indore Institute of Science & Technology, Indore

IIST/Circular/ 2020-21

Dt. 20/05/2020

CIRCULAR

This is to inform you that a webinar on **Impact of Covid-19 on Chemical Industries & How to Secure Your Future through Gate** on 21/05/2020. It will be organized on 21/05/2020 at online through Zoom application. Students are requested to register and participate in it. For Further Information: Please contact coordinators for confirmation for your presence.

Faculty Coordinator

a) Samatha Singh, Head CM department

So, I invite all the interested faculty members to attend the FDP to get all advantages.


PRINCIPAL

Copy To:

All the HODs (To be circulated among all department and faculty members)



SUMMARY

Department of chemical engineering has successfully organised online webinar on "Impact of COVID-19 on Chemical Industries & how to secure your future through GATE" under IICHE. Mrs. Samatha Singh welcome the experts. The event was also attended by DG sir and Principal sir. In the Webinar, Expert share importance of Chemical Engineering and Impact of Covid-19 on chemical industries. He discussed society dependency on chemical product and industry revenue generation during covid-19. He also share his research experience & important tips for cracking GATE. Mr. Rahul Gupta Sir gave the vote of thanks.



Indore Institute of Science and Technology

Activity Report

Academic Year - 2019-20

Session: Jan-June 20

Name of Event: Webinar (Guest Lecture/Seminar/Workshop)

Date of Event: 21/05/20, Topic: Impact of COVID-19 on Chemical Industries & How to secure your future Through CATE

Organizing Dept.: CHEMICAL, Event Coordinator: Mrs. Samatha Singh
Mr. Rahul Gupta

Name of Partner / co-organizer (If Industry is involved): _____

Address: _____

Contact No.: _____, Email Id: _____

Name of Industry Representative: _____

Contact No.: _____, Email Id: _____

Name of Expert/Guest: Mr. Mufjazal Badshawala

Institute / Company: Linde Engineering India

Designation: Senior Engineer, Department: R&D

Address: Vadodara, Gujarat

Contact No.: 9998692215, Email Id: muffi.inn@gmail.com

Details of Participants:

No. of Institutes Participated	No. of Students Participated	Department	No. of Industry Representative	Remark if any
		CSE/IT/EC/ME/CM/ESH		
<u>97</u>	<u>90</u>	<u>CM</u>		

*Please enclose a detailed list.

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HOD



Principal





**Indore Institute of
Science & Technology**

Affiliated to - RGPV(Bhopal) & Approved by - AICTE(New Delhi)

www.indoreinstitute.com

Department of Chemical Engineering
Organizes



WEBINAR

on
**Impact of COVID - 19 on
Chemical Industries &**
how to secure your future through **GATE**



Mr. Muffazal Badshahwala

Senior Engineer- CFD, R&D at Linde Engineering India
Ex Researcher

Reliance Industries Ltd. &
Indira Gandhi Centre for Atomic Research

**GATE AIR
33 in 2014
&
118 in 2012**

Date: 21st May 2020

Time: 12.00 Noon

Register online at
www.indoreinstitute.com

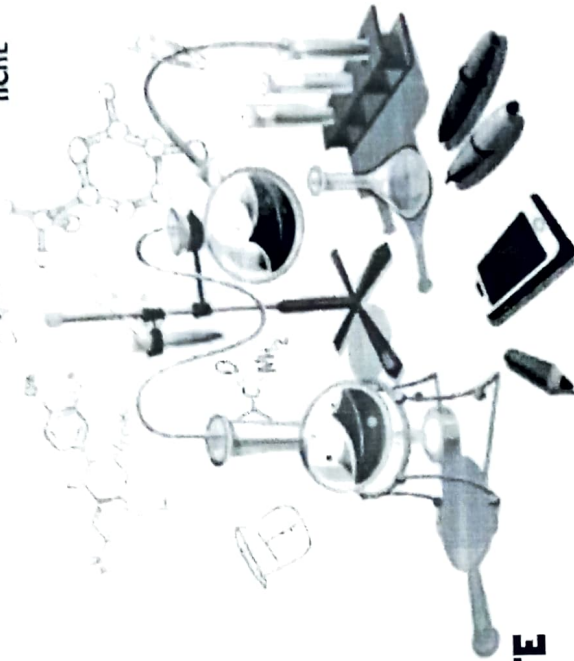
Faculty Coordinators

Ms. Samatha Singh (9165359797)

Mr. Rahul Gupta (9179195588)



IICHE



IIST Campus, Opp. IIM(Indore), Rau-Pithampur Road, Rau, Indore 453331(MP)
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Toll Free: **1800 103 3069** | 822 507 1000 / 822 407 1000

MUFFAZAL BADSHAHWALA

Senior Engineer at Linde Engineering India. (May 2019-Present),
Vadodara India-390002

E-mail: muffi.badshah@gmail.com

Contact number: +919998692215

Academic Background:

M.Tech Chemical Engineering (GPA: 7.78/ 10)

Indian Institute of Technology, Delhi

July 2012-June 2014

B.E Chemical Engineering (71.8%)

Institute of Engineering and Science IPS Academy, Indore
(Rajiv Gandhi Technical University, Bhopal)

Aug 2006-July 2010

Relevant Courses: Advanced Computational Fluid Dynamics, Application of Computational Fluid Dynamics, Membrane Separation Technology, Transport Phenomena, Heat Transfer, Fluid Mechanics, Mass Transfer, Chemical Reaction Engineering, Thermodynamics, Numerical Methods in Chemical Engineering, Process Modeling & Simulation.

Computer Skill:

- Programming Software: C, C++, MATLAB, FORTRAN
- Engineering Software: GAMBIT, ANSYS-FLUENT, ANSYS-CFX, ANSYS-DESIGN MODELER

Research Experience:

R&D, Linde Engineering India

June 2019-Present

1. Developing new team for CFD at Linde Engineering India to support Linde gas and work in collaboration with Reaction dynamics team at Linde Germany.
2. CFD Studies: Started working on bloom studies from Cooling tower to see the range of bloom exiting the near area in all four directions.

R&D, Haldor Topsoe A/S

Oct 2018-May 2019

3. CFD Studies: Determine the velocity of mixed gas above the catalyst bed in APOC Packed bed reactor and compare it with terminal velocity of catalyst particle so as to avoid milling risk. Recommendations were given to insert alumina balls on the top of the bed, as the velocities observed were much similar to terminal velocity. Simulations were done using Ansys CFX code
4. CFD Studies: Determine the mixing profile of mixed gas before the entrance of the swirl flow reactor. This was done to prevent carbon formation in the reactor. Simulations were done using Ansys CFX code
5. CFD Studies: Determine the temperature profile on the wall of T-mix pipe in ammonia zone section, so as to change the partial EPOC line to polymer line, thereby reducing significant cost. Simulations were done using Ansys CFX Code.
6. CFD Studies: Design of CTS burner which includes combustion and reforming in reactor zone and parameter control like flame length and exit temperature before catalyst bed involving finite rate chemistry and eddy dissipation modeling.

Refining R&D, Reliance Industries Limited.

Apr 2015-Oct 2018

1. To determine the impact on piping when liquid flashing is carried out in superheated vapor.
Action: Packinox-B Exchanger was leaked, and it was proposed to bypass part of liquid feed at the reactor outlet, which is superheated vapor. Three options (12', 1.5' and 12' quill) were evaluated for liquid flashing in vapor using CFD as a tool. VOF and Euler- Langrangian approach were implemented for modeling and simulation. It was found that 1.5' tapping could be a temporary solution (unless shutdown is not taken) for liquid flashing with very small size bubbles making impact on pipe wall. 12' quill was a recommended solution for the safe operations to increase the production capacity.

Outcome: Based on our recommendations, CTS has decided to not bypass the liquid through 12' line, as CFD result showed that there could be an intense knocking on the wall of vapor line, instead they have chosen 1.5' line to bypass the liquid and hence the production capacity increased by 40 TPD. After shutdown, it is expected that the capacity would increase by 300 TPD. Monetary benefits were claimed in Reliance Industries Ltd.

2. Effects of Vanes to improve efficiency of heat transfer in Air preheater system in SAR unit.
Action: Flue gas in SAR unit after burning in heater travels to air preheater system for heat recovery. Gas travels through a 90-degree elbow on tube side, it was understood that heat recovery was reduced by 25% over the design. Four sets of simulations were performed after introducing different vanes design to improve efficiency of heat transfer in the unit. Heat recovery was improved significantly and met the design capacity at the cost of negligible pressure drop over the base case.

Outcome: Results were implemented in the plant and one out of four recommended design of Vanes was considered. More than half mega calorie per annum of the energy was saved. Monetary benefits were claimed in Reliance Industries Ltd.

3. Ensure uniformity of air preheater flow to obtain maximum heat transfer efficiency.

Action: A simple methodology has been developed to quantify the effect of mal-distribution of hot gas over the tubes on the heat transfer efficiency of an air preheater. A correlation has been established that equates the standard deviation in the hot gas flow to the heat transfer efficiency of air preheater.

Outcome: Article published in October 2017 issue of heat transfer in Hydrocarbon Processing.

4. Steam hammering issue in Steam sparger of 1 LDPE unit.

Action: Heated DM water with steam is used to ignite ethylene in 1 LDPE reactor at the time of startup. Steam flows in sparger with no. of perforated holes and exchanges heat with water. It was observed that after two runs, sparger broke down with wear in interior of it. Chugging phenomena was a possible cause which was modeled using VOF method and phase change was modeled using condensation model. It was concluded that because of low flow rates steam hammering occurred inside the sparger and caused a wear which in turn broke down the sparger.

Outcome: Flow rate values at which chugging phenomena is prevented was provided to the plant. It was implemented and hence the operations are smooth since then. Monetary benefits were claimed in Reliance Industries Ltd.

5. To determine the velocity fields on the floors of slurry drum.

Action: It was proposed to understand the mixing pattern of slurry and impact of flow on bottom tiles of slurry mix drum. Crushed coal slurry from rod mill is fed in slurry mix drum, where it is mixed properly and fed to the gasifier. In a very first operation, it was observed that bottom tile of mix drum was broken into pieces. The problem was referred to RTG to carry out a CFD study to establish the flow around agitator (with six blades, three in each stage) in slurry mix drum. The single-phase flow simulation was carried out to study steam flow pattern in a reboiler near an impingement plate and it was found that the comparatively high velocity exists in the center of the and this could be a possible reason of failure of bottom tile in the tank.

Outcome: Based on our recommendations, CTS have proposed a two-layer concrete to suppress the velocity impact of slurry near the center of the tank. Since then the slurry mixing drum is operated safely.

6. Coke particle trajectory in flowing water from storm water channel to pond.

Action: Trajectory of coke particle was modeled using Euler-Lagrangian Modeling approach from particle size of 1 micron to 1 mm. It was observed that above 500-micron particle would settle down in pond and less than 500-micron particle would be carried away with water.

Outcome: Results were considered by CTS utility and accordingly pond design was planned.

7. Fluid flow and heat transfer studies to identify dew in 4 km pipeline from gasifier to CPP.

Action: 1-D model was developed for heat transfer calculations (skin temperature and bulk temperature) for HP syngas line (4 km with many bends) without insulation from gasification to CPP. Two cases for 12% and 20% of the design flow were simulated using the created model to check whether the dew occurs in the pipe, which is a cause of corrosion. Moreover, CFD studies were also performed to check the flow of gas for local hot spots or recirculation's in the pipe. Temperature drop of 30 °C was found using model, which further concluded that syngas flow would be operated safely. Also, CFD model showed that there would be no local hot spots and recirculation zone at the operated flow rates.

Outcome: Reliability studies for 4 km pipeline, to ensure the non-dew of syngas in line.

8. Fluid flow studies of LP steam flow on impingement plate in depropanizer reboiler of AU.

Actions: DP reboiler is a thermo siphon reboiler, where LP steam flows at a very high flow rate on shell side and reboiler feed flow through tube side. There is a steam impingement plate in the exchanger to prevent the high velocity on the tubes. Single phase simulations were carried out to study the flow pattern in a reboiler near an impingement plate. It was found that the high velocity exists on two tubes, which is responsible for leakage near the impingement plate.

Outcome: Reliability studies to check the flow impact on tubes in reboiler.

9. Flow distribution in Trickle Bed Reactors (VGOHT).

Action: Comparison of flow distribution in two commercial distributor trays were done. Maldistribution factor was calculated for 2 trays, and 6 simulations for different number of chimneys were performed using Euler-Euler approach and k-ε model.

Outcome: Exhaustive Literature report was made, and it was appreciated by CTS head.

10. Literature review of Slurry Phase Hydrocracking (SPH) reactor.

Action: In this article we have tried to bring out a status overview on slurry hydrocracking technologies. The various commercially available technologies are described in detail, followed by a summary on yield patterns and operating conditions. An economic analysis was carried out for GRM calculations of SPH and delayed coking technology.

Outcome: Published an article in RHO with a title "Slurry phase hydrocracking technology: Status overview" Issue: Feb-Aug 2018.

11. Hydrodynamics of Slurry phase reactor.

Action: An exhaustive literature review was performed on different regimes employed in slurry phase reactors and the associated hydrodynamic parameters.

Outcome: The study was useful to select the best hydrodynamics for slurry column reactor for H₂/VR system at elevated pressures.

and temperatures, the effects of solid concentration, liquid velocity, pressure and temperature on gas holdup. And the effects of distributors and bubble breaker plates in heterogeneous regime.

12. To understand the flow imbalance in FGC cooler unit of DTA FCC.

Action: It is proposed to understand the flow imbalance in Flue gas cooler (FGC) unit of DTA FCC. The flue gas vapors coming from regenerator at 700-710 °C are routed to third stage separator (TSS) where catalyst particles are captured. The outlet of TSS which contains catalyst fines is then routed to flue gas cooler through expander for steam generation. It was observed that catalyst fines deposits in one side of the Economizer section in FGC. Problem was then referred to RTG to carry out a CFD study to understand the flow distribution of gas in FGC. CFD simulations were done for Base case and Modified case, in which vanes were introduced at the inlet of FGC and at the elbow section of pipe through which flue gas enters in FGC. It was observed that flow distribution has been significantly improved when vanes were introduced.

Outcome: Recommendation were considered and implemented in the plant. Two cases were studied to understand the flow distribution of flue gas in FGC, and it was seen that there is a significant imbalance of flow in base case. To improve the flow distribution vanes were introduced in the pipe as well as at inlet section of FGC, and flow standard deviation was improved from 78% to 23% over average mass flow.

13. To ensure the proper crude homogenization with cutter stock.

Action: The homogenization of crude oil with cutter stock in a T-junction pipe was simulated using CFD commercial code Fluent 6.3.1. There is no agitation and Single-phase species transport model without chemical reactions was used in the simulations in order to see the mixing process and calculate the temperature of the blend based on the mass fractions. Volume weighted mixing law was used to calculate the density of mixture and mass weighted mixing law is used to calculate thermal conductivity, specific heat and viscosity of mixture.

Outcome: It was seen from the temperature contours that the almost uniform temperature profile is achieved after a distance of 160 m after mixing heavy crude oil and cutter feedstock. The maximum temperature at the outlet was 321.6 deg C as against the average value of 319 deg C. Results were considered in the plant and they have increased the mixing pipe length of crude and cutter stock to 180 m to ensure proper mixing.

Department of Atomic Energy, Indira Gandhi Center for Atomic Research, Kalpakkam, India.

Aug 2010-Apr 2012

Kinetics and modeling of ozonation process for oxidation of cerium from (III) to (IV)

Action: A mathematical model for the oxidation of cerium from (III) to (IV) in nitric acid medium using ozone as an oxidizing agent, in a static mixer reactor has been developed; assuming a general (p, m, nth) order kinetics. A combination of axial dispersion model and penetration theory was employed for governing the mass transfer phenomenon. Indigenous development of an ozone gas generator for kinetic studies along with initial experimental results pertaining to successful cerium oxidation and qualitative concentration profiles of various species along the reactor length as predicted by model, for a dummy rate equation, had been presented.

Outcome: Best project award for the year in 2012.

Aug 2012-Jun 2014

M.Tech Thesis

Effects of process parameters on power consumption in bench-top chlor-alkali single cell

Action: The effects of process parameters on power consumption of chlor-alkali membrane cell were studied. Caustic concentration (20% by wt.) and brine solution (2 pH) was kept constant in all the experiments. Two process parameters studied include brine concentration (2-3.5M) and temperature difference (ΔT) between caustic and brine solutions. ΔT was found to be the most important parameter which significantly affects power consumption.

Outcome: Scored A⁺ (9/10) for thesis and minor project

Aug 2012-Jun 2014

Minor project:

Removal of H₂S from syngas by electrochemical membrane separation.

Action: Electrochemical Membrane Separation is being studied to compete with the existing technique of H₂S removal. Electrochemical cell being fabricated for the removal of H₂S and determining the maximum H₂S removal rate for a given cell design and operating conditions. The present finding shows that eutectic of molten alkali carbonates has 93% ability to capture H₂S from syngas.

Publications:

- Publication in Hydrocarbon Processing titled "Ensure uniformity of flow inside an air preheater to obtain maximum heat transfer efficiency." Oct 2017
- Conference paper in Refining Technology Meet 2017 held at Vizag on "Analysis of Complex flow in a petroleum refinery" Mar-2017
- Conference paper in Cognizance 2009 IIT Roorkee on "LES studies of flow over of cylinder". April-2009

Corporate and Industrial Experience:

Evalueserve Ltd.

New Delhi, India
July 2014-Feb 2015

- Attended an extensive training of 1 month in Intellectual Property and R&D Department
- Profound knowledge of copyrights, patents, Trade secrets, Intellectual Property, Legal agreements and related matters

- Ability to handle multiple projects in high paced working environment.
- Quality check and co-ordination of various search and analytics projects.
- Hand on experience in Landscape Searching, FTE, FTO and Invalidity Search.

Projects Taken:

M.Tech short term projects:

- CFD || Large Eddy Simulation studies of Flow over a Cylinder: LES Studies was done of flow around a Cylinder to study the resolved eddies effect and results were compared with RANS Model.
- CFD || Calculation of Minimum Fluidization Velocity in gas slurry FBD.

Academic Achievements:

- Awarded for the best project award in Department of Atomic Energy, Indira Gandhi Center for atomic research in 2012.
- Successfully completed training in Introduction to Ansys Design Modeler, Ansys Meshing and Ansys Fluent March 2015
- Successfully completed training in Turbulent and multiphase flows. Apr 2015
- Attended a National Workshop on "Current Trends in Heat Transfer and Heat Exchanger Design at IES IPS Academy, Indore April 2008
- Participated in International year of Chemistry, Chemistry Research Scholar Meet (CRSM) at Indira Gandhi Center for Atomic Research, Kalpakkam July 2011
- GATE 2012: 99.7 percentile, All India Rank 318

References:

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- (2) Dr. Anupam Shukla
Associate Professor, Department of Chemical Engineering,
IIT Delhi, New Delhi India.
E-mail: anupam@chemical.iitd.ac.in
Web: <http://chemical.iitd.ac.in/?q=faculty/ashukla>
- (3) Dr. Shilpa Tripathi
Former HOD, Chemical Engineering, IES IPS Academy
Governing Bodies
Indore Institute of Technology, Indore, India
E-mail: shilpatripathi@indoreinstitute.com

Indore Institute of Science and Technology, Indore
Department of Chemical Engineering
 List of Participant in WEBINAR (21 MAY 2020)

FIRST YEAR

Name of Participant	Year	Institute/ Organization Name	Contact No.	Email Id
Aditi Narware	1	Indore Institute of science and technology	6261721498	narwareaditi88@gmail.com
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Anjali Bham		Don't pick up the call		
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DEEPIYOTI SINHA	1	Indian Institute of Space Science and Technology	9617118892	Monideepasinha15@gmail.com
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Himanshu vyas	1	Indore Institute of science and technology	7879682886	himanshu4vyas@gmail.com
Jayesh pandya	1	IIST	7470491411	jpandya7@gmail.com
Krishna Rao Durgre	1	Indore Institute of science and technology	9752888756	krishnadurgre610@gmail.com
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Naveet Sharma	1	IIST KMS IIST		
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VINAYAK KAUSHAL	2	IIST	8349839553	vinayakkaushal747@gmail.com
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Nitin Shrivastava	2	IIST	9111559991	nitin03012000@gmail.com
Sanjay Chouhan	2	IIST	8827025448	sachinuhan1615@gmail.com

2ND YEAR COUNT =16

THIRD YEAR

Name of Participant	Year	Institute/ Organization Name	Contact No.	Email Id
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Pritam Kumar	3	IIST	6268380393	pritam.kumarchem2017@indoreinstitute.com
Om Kumar tripathi	3	IIST	6260742611	tripathiom87@gmail.com

3RD YEAR COUNT =7

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FINAL YEAR

Name of Participant	Year	Institute/ Organization Name	Contact No.	Email Id
Aniket Verma	4	IIST	8878720785	aniketverma6456@gmail.com
Archita Chatterjee	4	Indore Institute of Science and Technology	9109256014	architachatterjee1@gmail.com
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Gaurav Rajpurohit	4	IIST	9827266727	rajpurohitgaurav98@gmail.com
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Mohit Salke	4	Indore Institute of Science and Technology, Indore	8269695469	mohitsalke1112@gmail.com
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Rakhi aarkh	4	Indore Institute Of Science And Technology	9111368653	aarkhrakhi92@gmail.com
Satyansh Shukla	4	IIST	6395761003	satyansh.shukla.9@gmail.com

and noble metals or metal halides as a shell material, we have synthesized core-shell hetero-structures of AgBr-Fe₂O₃. Along with the synthesis of hetero-structures, we successfully characterized it and studied its application in degradation of hazardous dyes such as Methylene blue.

- **B Tech Project - Extraction of Ursolic acid from Tulsi**

Ursolic acid is very important chemical in pharmaceutical industries. It acts as anticancer and anti-inflammatory agent. Researchers are trying to extract Ursolic acid from natural, cheap and easily available sources. In this project we successfully extracted Ursolic acid from dried Tulsi leaves. Using Soxlet Extraction technique we found out maximum Ursolic acid content which can be extracted from tulsi leaves and optimized this extraction process using batch reactor. We also found out optimized parameters such as Extraction time, solvent loading, stirring speed and temperature.

Publication

Ashish Mohod, Nishant Bhaskar, Vinayak Rajan, Ramansingh Thakur, Manisha Bagal, "Intensified synthesis of biodiesel using low-cost feedstock and catalyst via conventional as well as ultrasonic irradiation based approach", South African Journal of Chemical Engineering Volume 33, July 2020, Pages 74-82

Skills

Characterization Techniques learned : HPLC, UV-Spectrophotometer, FTIR Spectrometer,

DLS, Zeta Potential, FESEM, TEM, XRD, Photo-Luminescence Spectroscopy

Software known :

MATLAB, Aspen Plus, ANSYS

Languages Known :

English, Marathi and Hindi

Conference/Workshops Attended

- Attended one week AICTE sponsored QIP on "Recent Trends in Clean Technology for sustainable Environment" during 16th to 22nd April 2018 at Chemical Engineering Department, CIT, Coimbatore
- Attended one week STTP on "Spectroscopic Techniques- Fundamentals to Application" at Chemistry Department, VNIT, Nagpur during 04/12/2016 to 09/12/2016.



Pratima Patel	1	Indore institute of science and technology	9131737852	9131737852sapu@gmail.com
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Vishal Patel	1	Switch off		
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1ST YEAR COUNT =42

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4TH YEAR COUNT =12

OUTSIDE PARTICIPANTS

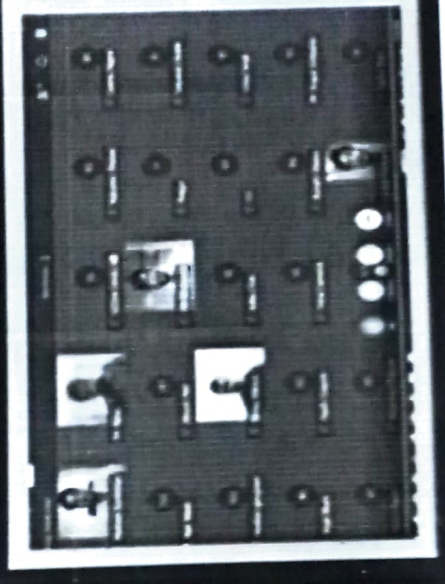
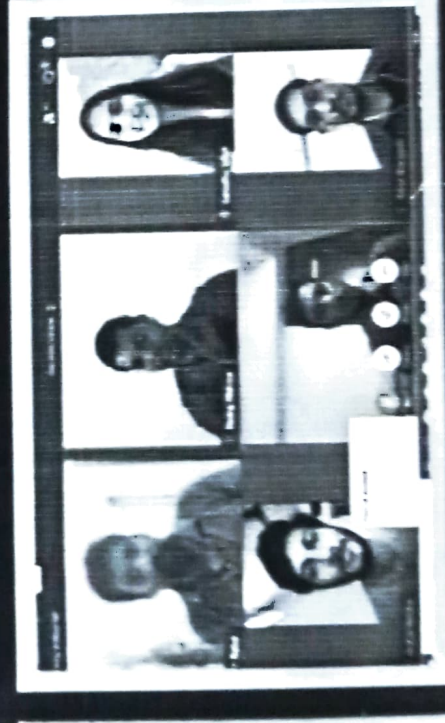
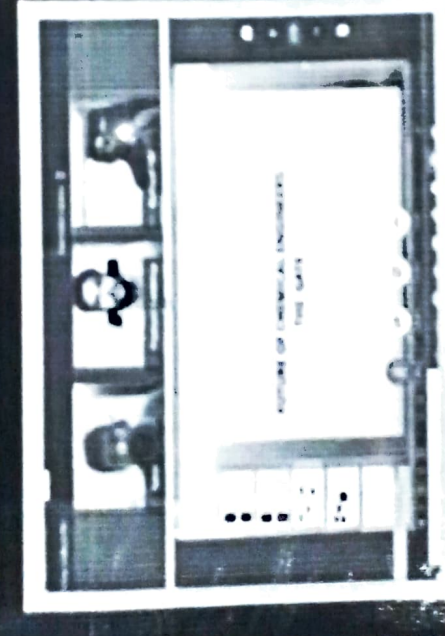
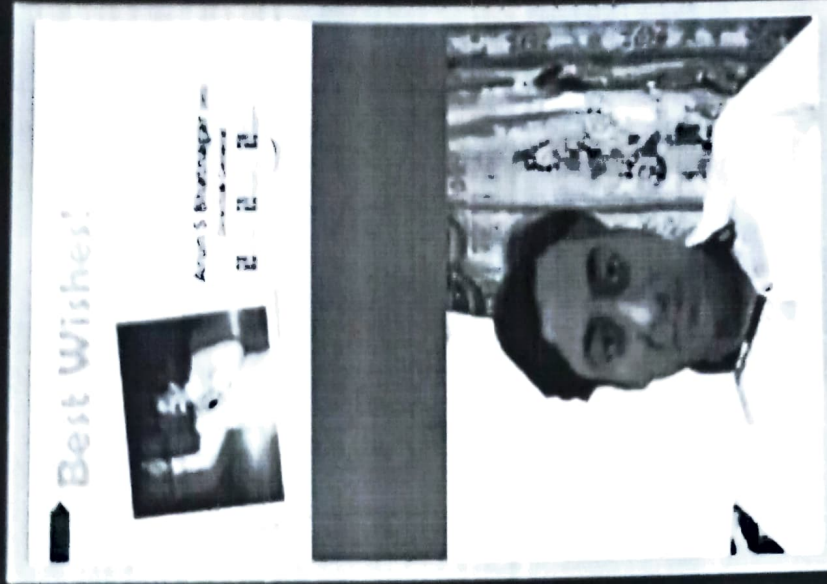
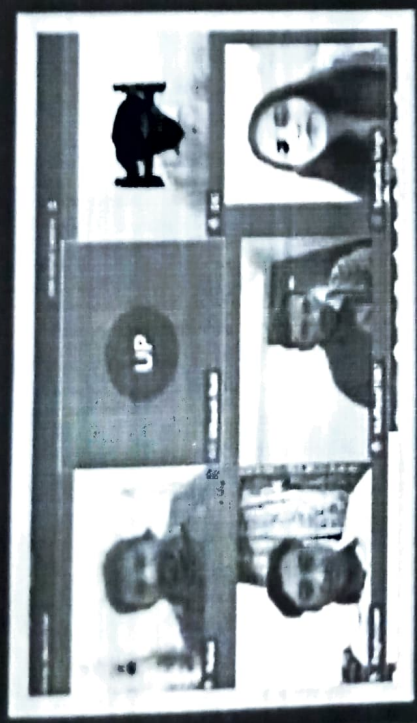
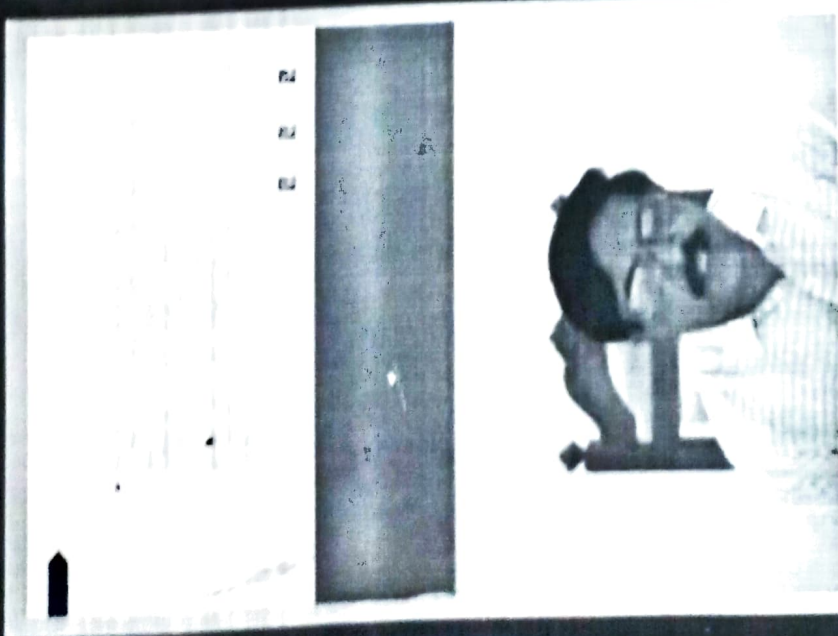
Name of Participant	Year	Institute/ Organization Name	Contact No.	Email Id
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Outsider count =11

Farhin Khan	faculty	7987578527	farhin.khan@indoreinstitute.com
prashant Kumbhkar	faculty		

Total Count =90(farhin prashant included)

Highlights of Webinar





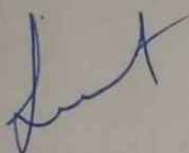
Timestamp	Name	Email ID	Contact No.	Was the first time you attended one of our events?	Was the webinar useful?	I am willing to join such kind of sessions if an opportunity comes in the future?	Overall effectiveness of the webinar?	Do you have any topic for next webinar?	Are you interested to attend series of free GATE tutorial classes?	Do you have any other suggestions or comments to help us improve our future events?
5/21/2020 14:06:59	Utkarsh Patil	putkarsh934@gmail.com	8770451754	Yes	Yes	Yes	5	Introduction to petroche	5	
5/21/2020 14:07:01	Siddhi Shukla	Siddhishukla844@gmail.c	6264728178	No	Yes	Yes	5	GATE	3	...
5/21/2020 14:07:32	Rishabh Meena	1234rishabhmeena@gmail	9669935512	Yes	Yes	Yes	5	Not right now	3	No Thanks
5/21/2020 14:08:11	Yuvraj Singh Naruka	Yuvrajn0507@gmail.com	8349210342	Yes	Yes	Yes	3	entrepreneurship after j	5	No
5/21/2020 14:08:20	Vishal Kumar Singh	vishalsingh26553@gmail.	7024991682	Maybe	Yes	Yes	4	How to make college cl	5	
5/21/2020 14:08:27	Rajkumar Dhakad	9826raj75@gmail.c	8516887567	Yes	Yes	Yes	4	On GATE course	5	
5/21/2020 14:09:00	Krishna Rao Dongre	krishnadongre9_10@gmai	9752888056	Yes	Yes	Yes	5	How to do preparation f	4	
5/21/2020 14:09:32	Aniket Patikar	aniketpatikar123@gmail.	8120220011	Maybe	Yes	Yes	5	Detailed session on Sel	5	
5/21/2020 14:09:59	Ashita Singh	ashitasingh986@gmail.co	8982355209	Yes	Yes	Yes	5	No	5	
5/21/2020 14:10:18	Azad	anubhav.singh9460@gme	9166338671	Maybe	Yes	Yes	4	Basic chemical process	5	No.it was good
5/21/2020 14:10:25	Om Tripathi	tripathiom87@gmail.com	6260742611	Maybe	Yes	Yes	4	No	3	Thanks sir get lot of knowledge about gate...compones at future's chemical... ☺[b-l]
5/21/2020 14:10:33	Bisal samanta	bisalsamanta81@gmail.c	8718866841	No	Yes	Yes	4	Software training for ch	5	No
5/21/2020 14:13:46	Disha Gawande	gawanded551@gmail.com	6263296859	Yes	Yes	Yes	4	No	4	No
5/21/2020 14:18:36	Kavya Mishra	kavya.m2023@gmail.com	6264722922	Yes	Yes	Yes	5	No	5	No
5/21/2020 14:25:12	Rishika sharma	rishikasharma570@gmail.	9644720254	Yes	Yes	Yes	5	Chemicals and. health..	5	No
5/21/2020 14:37:24	Himanshu vyas	himanshu06vyas@gmail.c	7879682880	No	Yes	Yes	4	No	5	No
5/21/2020 14:37:34	Garima rajput	sabalsinghrajput507@gm	7067775970	Maybe	Yes	Maybe	4	No	5	No
5/21/2020 14:38:26	Kelika shah	Kelikashah575@gmail.co	8269280654	No	Yes	Yes	5	No	5	It was great session. Thank you everyone ☐
5/21/2020 14:39:57	Amol Narendra Joshi	amol.joshi17@vit.edu	9930528086	Yes	Yes	Maybe	3	GATE preparation strat	4	NA
5/21/2020 14:40:33	Chetan Yadav	chetanjiyadav9090@gmai	6260248954	Maybe	Yes	Yes	4	Why our india behind tr	5	Please use different platform for webinar.
5/21/2020 14:41:42	Pragya Balothiya	Pragya.balothiya@gmail.c	8435845307	Yes	Yes	Yes	4	If possible please condi	5	
5/21/2020 14:46:54	Nitin Shrivastava	nitin03012000@gmail.com	9111559991	Yes	Yes	Yes	4	Fluid mechanics	4	
5/21/2020 14:48:37	Sneha Rajput	snehari2805@gmail.com	9926917892	Maybe	Yes	Yes	3	Gate	3	Very good
5/21/2020 14:56:01	Satyansh Shukla	satyansh.shukla.9@gmail	6395761003	Maybe	Yes	Yes	4	Process design and sir	5	
5/21/2020 14:57:00	Vandana lakshkar	vlakshkar635@email.com	7974524723	Maybe	Yes	Yes	4	Gate	5	It's very useful our future. And it's a good event.
5/21/2020 15:07:48	Harshit Chouhan	harshitchouhan1101@gm	8720095532	Yes	Yes	Maybe	4		5	
5/21/2020 15:16:08	Sanskriti Joshi	joshisanskriti@gmail.co	8839568065	Yes	Yes	Yes	4	More information about	5	No
5/21/2020 15:16:19	Muskan gangwani	gangwanim92@gmail.corr	8103626778	Maybe	Yes	Yes	5	Industrial knowledge	5	No
5/21/2020 15:32:52	pritam kumar	pritam.kumarchem2017@	6268380393	No	Yes	Yes	5	On about gate	5	
5/21/2020 15:39:32	Aditi Narware	narwareaditi88@gmail.co	6261721498	No	Yes	Yes	4	A session on BARC exi	5	No
5/21/2020 15:45:27	Akansha Singhal	akanksha0598@gmail.com	8109889234	No	Yes	Yes	4	Artificial intelligence ani	4	
5/21/2020 16:11:33	Aquib Quayam	aquibquayam@gmail.com	7348402642	No	Yes	Yes	5	Growth opportunity in p	5	
5/21/2020 16:51:32	Jaya jhala	Jhalajaya26@gmail.com	9981723722	No	Yes	Yes	3	...	3	...
5/21/2020 18:00:36	Mohit Salke	mohitsalke1112@gmail.c	8269695469	No	Yes	Yes	4	No	4	
5/21/2020 18:29:47	Shagun parihar	0818CM181012	9174811258	Maybe	Yes	Yes	4	How to prepare for GA1	5	
5/21/2020 19:15:35	Krupal umbarkar	krupalumbarkar6735@gm	9977066498	Yes	Yes	Yes	4	Opportunity of startups	4	Everything is alright ☺
5/21/2020 21:24:34	Prabhu Ranjan Saven	prabhuxaxena26@gmail.c	7607368042	Yes	Yes	Yes	5	About the chemical resu	5	
5/21/2020 22:05:59	DEEP JYOTI SINHA	Monideepsinha15@gmail	9617118892	Yes	Yes	Yes	5	Chemical research for l	5	
5/22/2020 9:28:26	Azad	anubhav.singh9460@gme	9166338671	Maybe	Yes	Yes	4	Basic chemical process	5	No.it was good
5/22/2020 16:55:30	Rakhi aarth	aarkhrakhi92@gmail.com	9111368653	Yes	Yes	Yes	5	Exposure and opportun	5	

DATE: 04/09/2020

Approval Letter

Department of Chemical Engineering interested to organize Training on “**Basic to advance Process Calculation for Chemical Engineers**” from 22nd September 2020 onwards under SIG Process Integration with Pinch Technology. Kindly approve for organizing the Training in the department.

Proposal and Budget enclosed herewith.

**HOD CM****PRINCIPAL**



Department of Chemical Engineering



Certificate of Completion

This is to certify that Mr. /Ms. _____ has
successfully completed 20 hrs. Online Internship cum training on "Basic to Advance Process
Calculations for Chemical Engineers" from 22nd Sept. 2020 onwards.

23/9/20
Mr. Raman Singh Thakur
Expert

Sumatha Singh
Ms. Sumatha Singh
HOD, Chem. Engg.

Dr. Keshav Patidar
Dr. Keshav Patidar
(I/c.) Principal, IIST

Arun S. Bhatnagar
Mr. Arun S. Bhatnagar
Director General
IIST-IIP-IIMR



Indore Institute of Science & Technology, Indore

IIST/Circular/ 2020-21

Dt. 04/09/2020

CIRCULAR

This is to inform you that Training on "**Basic to Advance process calculation for chemical engineers**" will be organized on 22nd September 2020 at Online source through Zoom meet by IIST Campus from 10:30 am onwards. Faculty members and students are requested to register and participate in it. For Further Information: Please contact coordinators for confirmation for your presence.

Faculty Coordinator

a) Mrs. Samatha Singh, HOD, CM dept.

So, I invite all the interested students and faculty members to attend the Training to get all advantages.


PRINCIPAL

Copy To:

1. All students
2. All faculty and Staff
3. Dean/HOD
4. Registrar office
5. DG office
6. Office Record



Department of Chemical Engineering
Indore Institute of Science & Technology

NOTE SHEET

Date: 02/09/2020

We are pleased to inform you that we are organising Training on "**Basic to Advance process calculation for chemical engineers**" from 22nd September to 29th September 2020. In this we are planning to provide knowledge of chemical engineering software's and all complex calculation. Kindly join to learn it from the basic to advance level.

Dr. Samatha Singh
Head, Chemical Engg. Dept.
IIST, Indore

Dr. Keshav Patidar
Principal
IIST, Indore



Curriculum Vitae

Mr. Ramansingh V. Thakur

M Tech Chemical Engineering

National Institute of Technology, Rourkela

Email: rvt114@gmail.com / Mobile: 7077109878

Career Objective

To achieve a challenging and professional position, from where I can significantly contribute to the world, both technically and socially, through my dedication, hard work, knowledge and values.

Education

Degree/ Exam qualified	Year	University/ Board	CGPA/ Percentage	Class
M Tech Chemical Engineering	2016	NIT Rourkela	8.08	First
B Tech Petrochemical Engineering	2013	Dr. B. A.T. U., Lonere	7.11	First
H.S.C.	2009	Maharashtra State Board	78.67	First
S.S.C.	2007	Maharashtra State Board	84.61	First

- ❖ Qualified **GATE 2014** in Chemical Engineering with score of 436 and All India Rank 1558.
- ❖ Completed NPTEL Online Certification Course on “Multiphase Flows” and “Optimization in Chemical Engineering”

Work Experience

Sr. No.	Name of the institute	Post Held	Period	
			From	To
1.	Dr. Babasaheb Ambedkar Technological University, Lonere	Assistant Professor	02/07/2016	10/06/2017
2.	Dr. Babasaheb Ambedkar Technological University, Lonere	Assistant Professor	03/07/2017	20/06/2018



Sr. No.	Name of the institute	Post Held	Period	
			From	To
3.	Dr. DY Patil Institute of Engineering, Management and Research	Assistant Professor	25/06/2018	Till now

Subjects Taught

Theory Subjects:

- Advance Petroleum Refining
- Chemical Engineering Mathematics
- Chemical Process Synthesis
- Chemistry of Petroleum Hydrocarbons
- Nanotechnology
- Process Dynamics and Control
- Process Instrumentation and Control

Laboratory Conducted:

- Chemical reaction engineering and mass transfer operation
- Fluid flow operations
- Process Designing, Flow-sheeting and Simulation (Using ASPEN Plus and MATLAB)

Responsibilities handled during job

- Organized Global Alumni Meet of the department
- Organized DWSIM workshop for the students of Chemical and Petrochemical Engineering
- Conducted GATE coaching classes for final year students for Process Dynamics and Control subject.
- Organized guest lectures on Green Chemistry and Nanotechnology
- Organized guest lecture on Process Safety
- Organized industrial visits for second and third year students in nearby industries.

Projects

- **M Tech Project – Synthesis and application of magnetically separable catalyst**
In heterogeneous catalysis recovery of used catalyst is attracting the attention of many researchers. Using iron oxides such as maghemite or magnetite as a paramagnetic core material



and noble metals or metal halides as a shell material, we have synthesized core-shell hetero-structures of $\text{AgBr-Fe}_2\text{O}_3$. Along with the synthesis of hetero-structures, we successfully characterized it and studied its application in degradation of hazardous dyes such as Methylene blue.

- **B Tech Project - Extraction of Ursolic acid from Tulsi**

Ursolic acid is very important chemical in pharmaceutical industries. It acts as anticancer and anti-inflammatory agent. Researchers are trying to extract Ursolic acid from natural, cheap and easily available sources. In this project we successfully extracted Ursolic acid from dried Tulsi leaves. Using Soxhlet Extraction technique we found out maximum Ursolic acid content which can be extracted from tulsi leaves and optimized this extraction process using batch reactor. We also found out optimized parameters such as Extraction time, solvent loading, stirring speed and temperature.

Publication

Ashish Mohod, Nishant Bhaskar, Vinayak Rajan, Ramansingh Thakur, Manisha Bagal, "Intensified synthesis of biodiesel using low-cost feedstock and catalyst via conventional as well as ultrasonic irradiation based approach", South African Journal of Chemical Engineering Volume 33, July 2020, Pages 74-82

Skills

Characterization Techniques learned : HPLC, UV-Spectrophotometer, FTIR Spectrometer,

DLS, Zeta Potential, FESEM, TEM, XRD, Photo-Luminescence Spectroscopy

Software known :

MATLAB, Aspen Plus, ANSYS

Languages Known :

English, Marathi and Hindi

Conference/Workshops Attended

- Attended one week AICTE sponsored QIP on "Recent Trends in Clean Technology for sustainable Environment" during 16th to 22nd April 2018 at Chemical Engineering Department, CIT, Coimbatore
- Attended one week STTP on "Spectroscopic Techniques- Fundamentals to Application" at Chemistry Department, VNIT, Nagpur during 04/12/2016 to 09/12/2016.



- Attended one week STTP on "Zero Discharge: Recent Advancement and Sustainability" at Chemical Engineering Department, NIT, Durgapur during 30/08/2016 to 04/10/2016.
- Participated in ThinkNano2016 conference held at Center for Nano Science and Engineering, IISc Bengaluru for poster presentation.

Achievements

- Second Prize winner of the First Round of the Telegram Educational Test Contest (the "Competition") conducted by Telegram on 24 April 2020 — 15 May 2020.
- M Tech Project nominated for Best Institute Postgraduate Project Award at NIT Rourkela.
- Best Poster Award in Think NANO 2016, Poster presentation competition held at CeNSE, IISc Bengaluru.

Personal Information

Full Name Ramansingh Vikramsingh Thakur
Date of birth 25-10-1991
Father's name Vikramsingh
Mother's name Swarooprani
Sex Male
Nationality Indian
Address Shree Ramanji, Sushiladevi Deshmukh Nagar, Old Ausa Road Latur MH 413531
Interests Listening music and Travelling

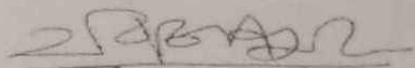
Declaration

I hereby certify that the above information given is true and correct.

Date : 10/09/2020

Place : Pune

Yours Sincerely



Ramansingh V. Thakur



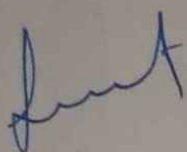
Marks of Internship Evaluation

Score	Name of the student	Attendance %
15 / 20	Sanjay	29
11 / 20	Jaya jhala	86
19 / 20	Harshit Chouhan	29
18 / 20	bisal samanta	100
20 / 20	Kavya Mishra	71
19 / 20	Shagun Parihar	71
19 / 20	Pragya balothiya	86
19 / 20	Arjun K.C.	14
13 / 20	Rashi nigam	29
18 / 20	Rajkumar Dhakad	57
18 / 20	Pritam Kumar	86
20 / 20	Tarun khedre	43
17 / 20	Ashish Pawar	29
20 / 20	VINAYAK KAUSHAL	43



Summary of Event

Chemical Engineering Dept. is happy to organise skill development training for 4th & 3rd year students on **"Basic to Advance Process Calculations for Chemical Engineers"** by the Expert Mr. Raman Singh Thakur from NIT Rourkela from 22nd to 29th Sept. 2020. The objective of this training is to understand the basic concepts of process synthesis for conceptually designing an optimized chemical process.



Head CM



Indore Institute of Science & Technology, Indore

IST/Circular/ 2020-21

Dt. 04/09/2020

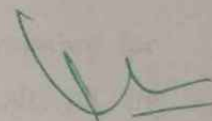
CIRCULAR

This is to inform you that Training on **"Basic to advance process calculation for chemical engineers"** will be organized on 22nd September 2020 onwards. All are requested to gather at Auditorium Block A, IIST Campus by 10:30 am. Faculty members and students are requested to register and participate in it. For Further Information: Please contact coordinators for confirmation for your presence.

Faculty Coordinator

- a) Mrs. Samatha Singh, HOD, CM department

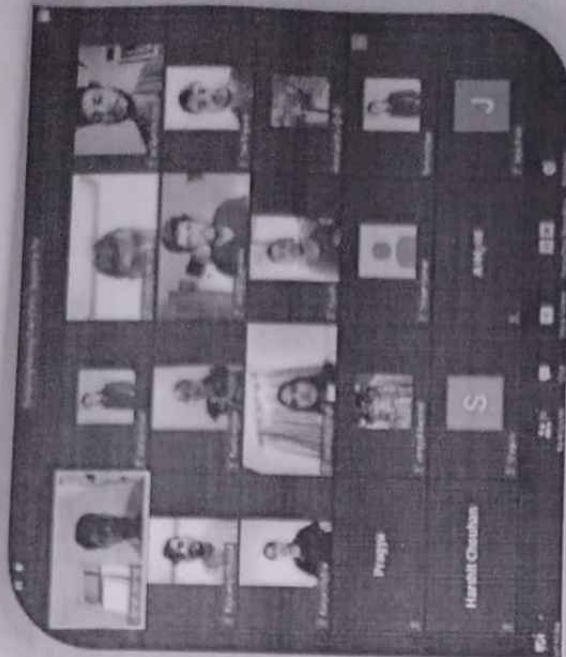
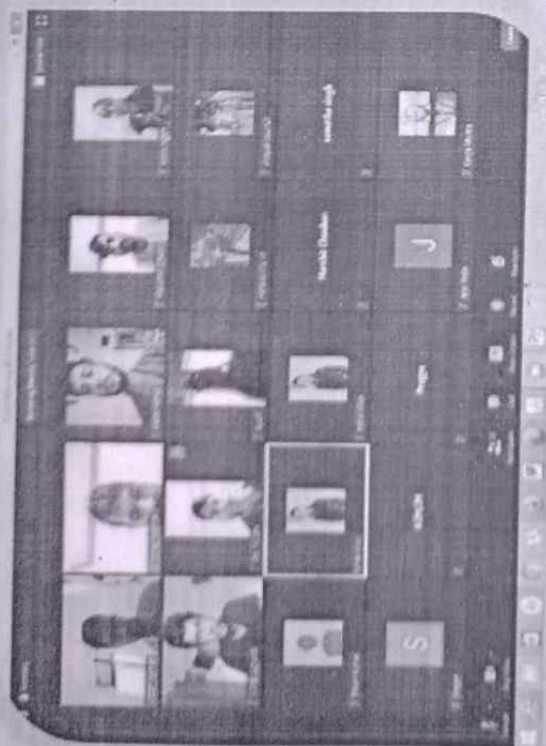
So, I invite all the interested students and faculty members to attend the Training to get all advantages.


PRINCIPAL

Copy To:

1. All students
2. All faculty and Staff
3. Dean/HOD
4. Registrar office
5. DG office
6. Office Record





Modules

• Why to learn Excel?

• Are equations important?

• Modules –

- Module One: Excel Setup and Basic Skills (2 hours)
- Module Two: Heat Transfer (2 hours)
- Module Three: Process Calculation (2 hours)
- Module Four: Fluid Flow (2 hours)
- Module Five: Thermodynamics (2 hours)
- Module Six: Mass Transfer (2 hours)
- Module Seven: Chemical Reaction Engineering (2 hours)

$$PV = nRT$$

Equation

Physical



Department of Chemical Engineering
Organizing

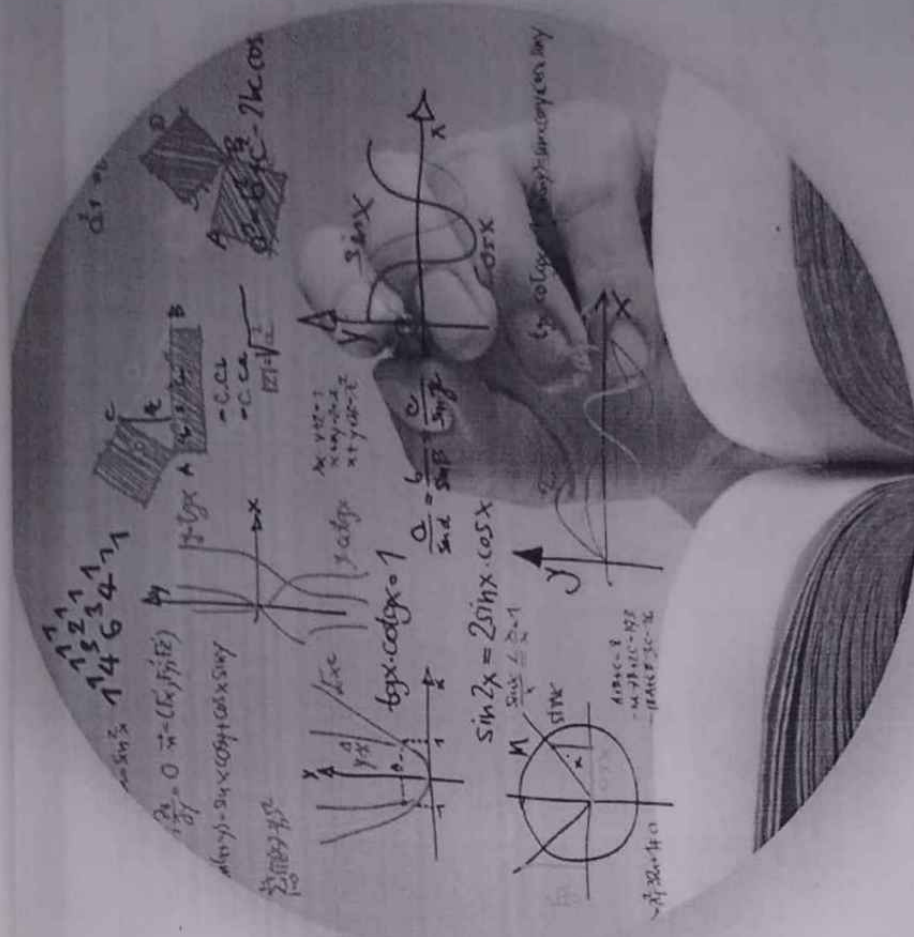
Training on Basic to Advance Process Calculations for Chemical Engineers

Starting from:
22nd September, 2020

Expert
Mr. Ramansingh V. Thakur
NIT Rourkela
(70771 09878)



Coordinator
Ms. Samatha Singh
HOD - Chem Dept
(9165359797)



Training Feedback

Time stamp	Name	Enrollment No	Email	How satisfied were you with the training ?	How relevant and helpful do you think it was for your career ?	How satisfied were you with the session content?	How satisfied were you with the Trainers ?	What do you have learnt in this training ?	Do you want such type of training in future ?	What your review about this training.
10/5/2020 15:50:05	Harshit Choudhary	0818CM181005	harshitchohan101@gmail.com	2	3	3	4	Learning complex calculations through excel	Yes	
10/5/2020 15:48:18	Ovi Tripathi	0818CM171003	tripathiovi87@gmail.com	3	5	3	4	Around some calculations are interesting, topic is important of excel in chemical engineering	Yes	Good
10/5/2020 15:59:32	VINAYAK KAUSHAL	0818CM181014	vinaayakkauhal747@gmail.com	5	5	5	5		Yes	It was good
10/5/2020 18:37:40	Pragya	0818CM181011	Pragya.balehuva@gmail.com	5	5	5	5	How to handle the process calculations in excel sheet	Yes	I learnt a much from this session as really helpful for my upcoming subjects and they were short in that and a part of this session is very interesting
10/6/2020 10:47:07	Ayushi	0818CM181003	ayushidevi20@gmail.com	2	4	4	4	Solving using problem through Excel	Yes	It was good but because of absence of PC, it was not so easy much
10/6/2020 12:20:26	Jaya Jha	0818CM181008	Jhalajha26@gmail.com	4	4	4	4	Work on excel sheet	Yes	



INDIAN INSTITUTE OF CHEMICAL ENGINEERS

Dr. H. L. Roy Building, Jadavpur University Campus,
Raja Subodh Ch Mullick Road, Post Box 17001, Kolkata 700 032, India
Tel : +91-33-2414-6670, +91-33-2412-9314, Fax : +91-33-2414-6670
E-mail : liche@glascl01.vsnl.net.in; lichehq@vsnl.com
Website : www.liche.org.in

G/O-19/2019 / 729

13 April 2019

Mrs Samantha Singh
Head, Dept. of Chemical Engineering
Indore Institute of Science
& Technology
Pithampur Road
Opp. IIM, Indore 453 331
Madhya Pradesh

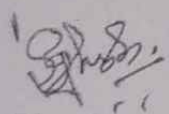
Dear Madam,

We thankfully acknowledge receipt of a DD (No. 000463) for Rs. 25,000/- towards Life Organisational Membership (2018 – 19) of Indore Institute of Science & Technology. We would look forward to a long term association of your esteemed organisation with our Institute in a meaningful and productive way.

Also, enclosed please find the receipt for your referred payment of Rs. 25,000/- towards the Life membership of your Institute.

Thanking you once again,

With best regards,


Sandip Ghosh
Asst. Secretary



Encl: Receipt (No. C/19-20/0025) for a DD for Rs. 25,000/-

Indian Institute of Chemical Engineers
ESTABLISHED 1947



*We heartily welcome Indore Institute of Science
& Technology, Indore as a Life Organisational
Member of the Indian Institute of Chemical
Engineers from the year 2019 – 20.*

*Given under the seal of the Institute by Resolution
of the Council.*



[Signature]
President

[Signature]
Secretary



INDIAN INSTITUTE OF CHEMICAL ENGINEERS

Dr. H. L. Roy Building, Jadavpur University Campus,
Raja Subodh Ch. Mullick Road, Post Box 17001, Kolkata 700 032, India.
Tel : +91-33-2414-6670, +91-33-2412-9314, Fax : +91-33-2414-6670
E-mail : iichein@iicet01.vsnl.net.in, iichein@vsnl.com
Website : www.iiche.org.in

SG/O-19/2019/28

20 May 2019

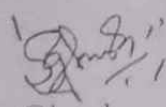
Mrs Samantha Singh
Head, Dept. of Chemical Engineering
Indore Institute of Science
& Technology
Pithampur Road
Opp. IIM, Indore 453 331
Madhya Pradesh

Dear Madam,

We are happy to enclose the Certificate of IIChE Membership for your esteemed Institute. We look forward to many occasions of meaningful cooperation between your Institute and IIChE, which will be mutually beneficial.

Thanking you once again,

With best regards,


Sandip Ghosh
Asst. Secretary



Encl: 1 Certificate of Membership

INDORE INSTITUTE OF SCIENCE & TECHNOLOGY
BASIC TO AD. PROCESS CALCULATION FOR CHEMICAL ENGINEERS
LIST OF CERTIFICATE ISSUED

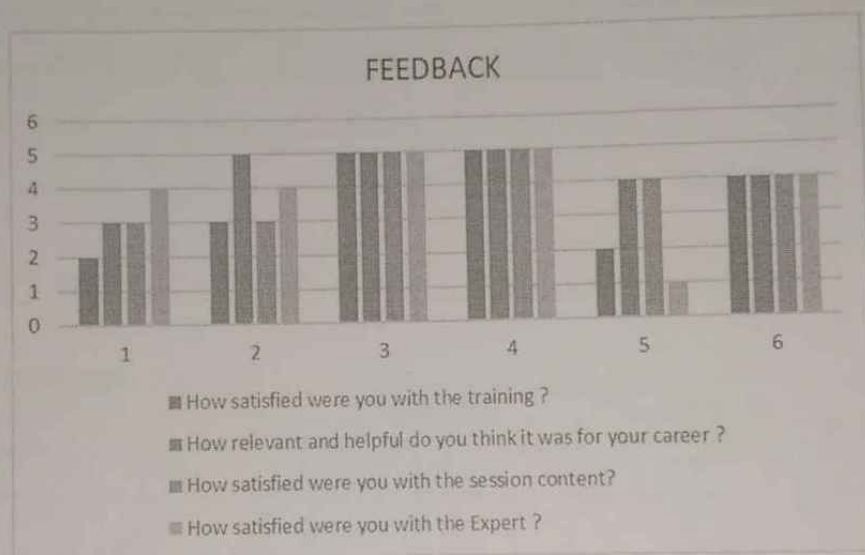
Date: 20/09/20

0818CM181001	ARJUN.K.C
0818CM181002	ASHISH.PAWAR
0818CM181003	AYUSH.CHOUGHAN
0818CM181004	BISAL.SAMANTA
0818CM181005	HARSHIT.CHOUGHANI
0818CM181007	HIMANSHU.BHAWALE
0818CM181008	JAYA.JHALA
0818CM181009	KAVYA.MISHRA
0818CM181011	PRAGYA.BALOTHIYA
0818CM181012	SHAGUN.PARIHAR
0818CM181013	TARUN.KHEDRE
0818CM181014	VINAYAK.KAUSHAL
0818CM181015	VISHAL.KACHAWA
0818CM193D01	NITIN SHRIVASTAVA
0818CM193D02	SANJAY CHOUGHAN
0818CM171001	ANIKET PATRIKAR
0818CM171002	HARSHIT KHARPE
0818CM171003	OM TRIPATHI
0818CM171004	PRITAM KUMAR
0818CM171006	SACHIN RAJPUT
0818CM183D01	ABHIJEET DEVRA
0818CM183D02	RAJKUMAR DHAKAD
0818CM183D03	RASHI NIGAM



SUMMARY

Chemical Engineering Dept. has successfully organised skill development training for 4th year and 3rd year students on "Basic to Advance Process Calculations for Chemical Engineers" by the Expert Mr. Raman Singh Thakur from NIT Rourkela under the IICHE & SIG named Process and Instrumentation Design. Mr. Rahul Gupta, Assistant Professor, Chemical Engineering Department welcome the expert on the 1st day of training. The training was started on 22nd Sep. 2020 and completed on 29th Sep. 2020. The main objective of this training is to understand the basic concepts of Process synthesis for conceptually designing an optimized chemical process and to familiarize the real chemical engineering problems faced in chemical industries and how to solve them on Microsoft Excel.. The vote of thanks was given by Ms. Farhin khan.



Indore Institute of Science and Technology

Activity Report

Academic Year - 2020-21

Session: Jul - Dec 20

Name of Event: _____ (Guest Lecture/Seminar/Workshop)

Date of Event: 20/09/20, Topic: Basic to Ad. Process Calculation For Chemical Engineers

Organizing Dept.: CHEMICAL, Event Coordinator: Dr. Samatha Singh

Name of Partner / co-organizer (If Industry is involved): _____

Address: _____

Contact No.: _____, Email Id: _____

Name of Industry Representative: _____

Contact No.: _____, Email Id: _____

Name of Expert/Guest: Mr. Raman Singh V. Thakur

Institute / Company: Dr. D. Y. Patil Institute of Engineering Management & Research

Designation: Asst. Prof, Department: Chemical

Address: Pune.

Contact No.: 7077109878, Email Id: rvt114@gmail.com

Details of Participants:

No. of Institutes Participated	No. of Students Participated	Department	No. of Industry Representative	Remark if any
		CSE/IT/EC/ME/CM/ESH		
<u>01</u>	<u>24</u>	<u>CM</u>		

*Please enclose a detailed list.

Also enclosed following details:

1. Approval Letter
2. Invitation card/Brochure / Leaflet (if printed by Institute or Organizing Partner) print/Social
3. Detailed summary on event. (Outcome)
4. Media Report (attach copy of newspaper)/ write-up for media/ FB write-up
5. Certificate / Letter (if printed by Institute or Organizing Partner)

HOD

Principal





**Indore Institute of
Science & Technology**

Affiliated to - RGPV(Bhopal) & Approved by - AICTE(New Delhi)

www.indoreinstitute.com



IICHE

Department of Chemical Engineering
Organizing

20 hrs **SIG**

on

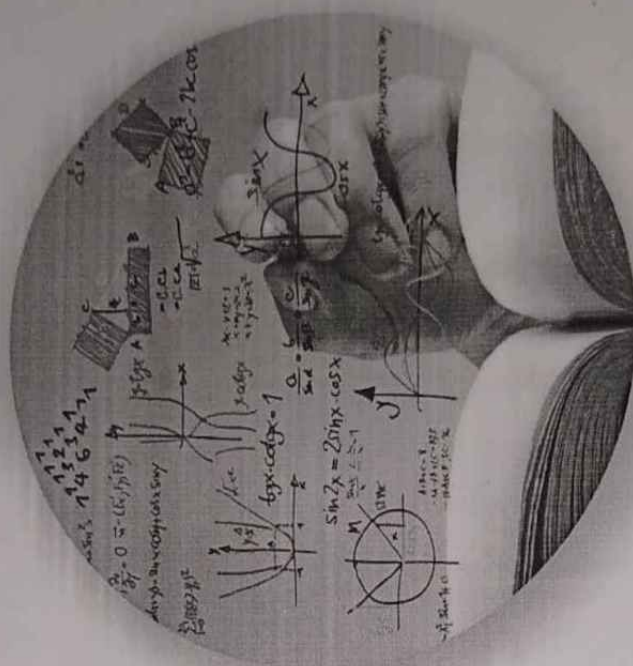
Basic to Advance Process Calculations for Chemical Engineers

Starting from:
22nd September, 2020

Expert

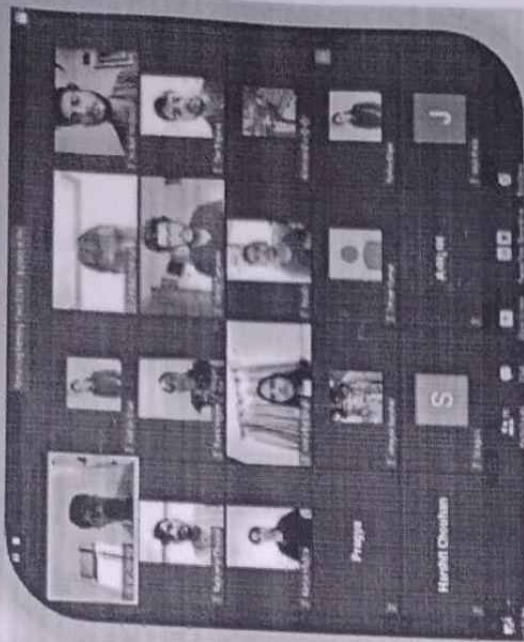
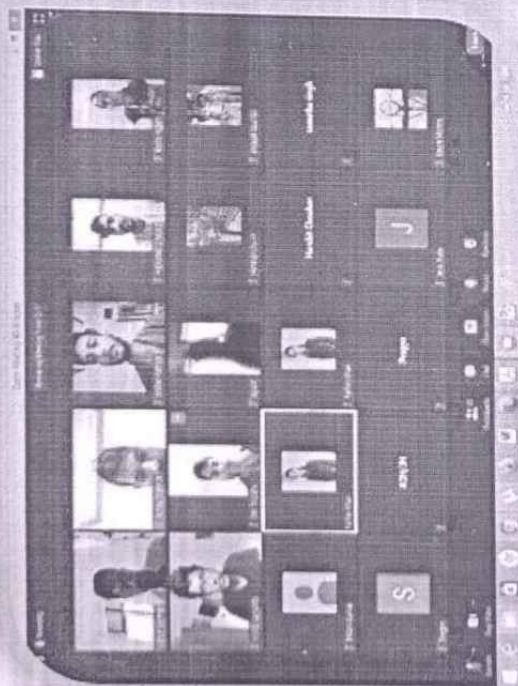
Mr. Ramansingh V. Thakur
NIT Rourkela
(70771 09878)

Coordinator
Ms. Samatha Singh
HOD - Chem Dept
(9165359797)



IIST Campus, Opp. IIM(Indore), Rau-Pithampur Road, Rau, Indore 453331(MP)
www.indoreinstitute.com | info@indoreinstitute.com | www.facebook.com/IISTcollegeindore/
Toll Free: 1800 103 3069 | 822 507 1000 / 822 407 1000

Special Interest Group (SIG) on Basic to Advance Process Calculations for Chemical Engineers



Modules

Why to learn Excel?
Are equations important?
Modules –

- Module One: Excel Setup and Basic Skills (2 hours)
- Module Two: Heat Transfer (2 hours)
- Module Three: Process Calculation (2 hours)
- Module Four: Fluid Flow (2 hours)
- Module Five: Thermodynamics (2 hours)
- Module Six: Mass Transfer (2 hours)
- Module Seven: Chemical Reaction Engineering (2 hours)

$PV = nRT$ Equation

Physical



INDORE INSTITUTE OF SCIENCE AND TECHNOLOGY, INDORE
DEPARTMENT OF CHEMICAL ENGINEERING
SIG ATTENDANCE

IV yr/ VII sem

Enrollment No.	Name	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total
0818CM171001	ANIKET PATRIKAR	P							1
0818CM171002	HARSHIT KHARPE			P					1
0818CM171003	OM LAVKUSH KUMAR TRIPATHI	P							1
0818CM171004	PRITAM KUMAR	P	P	P	P		P	P	6
0818CM171007	SACHIN PATIL								0
0818CM183D01	ABHIJIT SINGH DEVRA			P					1
0818CM183D02	RAJKUMAR DHAKAD	P	P	P		P			4
0818CM183D03	RASHI NIGAM	P	P						2



INDORE INSTITUTE OF SCIENCE AND TECHNOLOGY, INDORE
DEPARTMENT OF CHEMICAL ENGINEERING
SIG ATTENDANCE

III yr/ V sem

Enrollment No.	Name	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total
0818CM181001	ARJUN K.C	P							1
0818CM181002	ASHISH PAWAR	P		P					2
0818CM181003	AYUSH CHOUHAN	P	P						2
0818CM181004	BISAL SAMANTA	P	P	P	P	P	P	P	7
0818CM181005	HASHIT CHOUHAN	P	P						2
0818CM181007	HIMANSHU BHAWLE	P	P	P	P				4
0818CM181008	JAYA JHALA	P	P	P	P	P		P	6
0818CM181009	KAVYA MISHRA	P	P	P	P	P			5
0818CM181010	MANISH KUMAWAT								0
0818CM181011	PRAGYA BALOTIYA	P	P		P	P	P	P	6
0818CM181012	SHAGUN PARIHAR	P	P		P			P	4
0818CM181013	TARUN KHEDRE		P			P	P		3
0818CM181014	VINAYAK KOUSHAL	P	P	P					3
0818CM181015	VISHAL KACCHAWA	P							1
Lateral entry	NITIN SHRIVASTAV			P					1
Lateral entry	SANJAY CHOUHAN		P	P					2



“BASIC TO ADVANCE PROCESS CALCULATIONS FOR CHEMICAL ENGINEERS”

22nd – 26th Sept. 2020

ABOUT THE TRAINING PROGRAM

As process engineering calculation is very critical step for any chemical industry either it is Operating Plant or any Engineering Procurement and Construction company. Microsoft Excel is widely used tool in various chemical and petrochemical industries for energy and material balance calculation, project management, etc. Being a powerful tool for calculations, yet it is very simple, easily available and user friendly. Most of the industries use Microsoft Excel for performing all complex calculations. It is Multidisciplinary engineering application. Students should have expertise on various process engineering calculation tools starting from Microsoft Excel, CHEMCAD, DWSIM, ASPEN Plus etc. Accurate and precise calculations increase process economy and give better efficiency.

This STTP will give expertise on process calculations used in Chemical industries which covers wide spectrum of industries like Oil & Gas Production, Chemical, Nuclear Fuel Processing, Petroleum Refining, Gas Supply, Electricity Generation, Steel, Water & Sewerage, Food & Dairy Industry. The Program focuses on live industrial problems based on Heat Transfer, Fluid Mechanics, Chemical Engineering Thermodynamics, Mass Transfer and Chemical Reaction Engineering. This program will be useful for UG, PG students, research scholars and industry personnel.

ABOUT THE INSTITUTE

Indore Institute of Science and Technology, Indore (IIST), Indore Institute of Science & Technology (IIST) established in the year 2003, is amongst the Top 5 Engineering Colleges of Indore. The Institute is approved by AICTE, New Delhi and affiliated to RGPV Bhopal offering Bachelor's and Master's Degree in Engineering. At IIST, we are committed to enhance the employability Quotient of the Students along with Holistic Development. The Institute has tie-up with premier IITs (Delhi & Bombay) for Academic Excellence in the areas of Virtual Labs, e-Yantra, etc. We have well-qualified faculty team, mostly with Ph.D degree in the latest technological domains. Our Technology enabled Flipped Classroom pedagogy enhances the student engagement in the classroom and make them focused on the practical aspects of the subject. The institute has created, dedicated Special Interest Groups (SIGs) to enable the faculty and staff to work on the latest technologies in the newly established State of the art Lab Infrastructure for Internet of Things (IoT), Apple iOS application development, Cloud Computing, Data Analytics, Artificial Intelligence, Robotics, Aero Modelling, Waste Water Treatment, Water Harvesting, etc.





Learning objectives of STTP

- To provide expertise on Microsoft Excel
- To provide a platform to interact with various academicians and Industrial experts in order to understand the basic concepts of Process synthesis for conceptually designing an optimized chemical process.
- To familiarize the real chemical engineering problems faced in chemical industries and how to solve them on Microsoft Excel.
- To analyze the real industrial projects

Outcomes of Programme:

- Identify and solution of real industrial problems in refineries and other chemical process plants.
- Performing advance mathematical operation on Microsoft Excel
- Performing heat transfer calculations on Microsoft Excel including steady state conduction, counter current heat exchanger, lumped heat capacitance.
- Performing process calculations on Microsoft Excel like material and energy balance for reactive and non-reactive systems with and without recycling.
- Performing thermodynamic calculations on Microsoft Excel including equation of states etc.
- Performing mass transfer calculations on Microsoft Excel like batch distillation sizing and binary distillation operation.
- Performing Batch reactor yield optimization and regressing rate constants in rate equation from experimental data under chemical reaction engineering.



Coordinators Details:

1. Mrs. Samatha Singh
samatha.singh@indoreinstitute.com , 9165359797
2. Ms. Farhin Khan
farhin.khan@indoreinstitute.com , 7987578527

Speakers Details:

1. **Mr. Ramansingh V. Thakur**
M Tech Chemical Engineering

National Institute of Technology, Rourkela

Email: rvt114@gmail.com / Mobile: 7077109878

Working Experience

1. Dr. Babasaheb Ambedkar Technological University, Lonere, Assistant Professor
02/07/2016 10/06/2017
2. Dr. Babasaheb Ambedkar Technological University, Lonere, Assistant Professor
03/07/2017 20/06/2018
3. Dr. DY Patil Institute of Engineering, Management and Research, Assistant Professor
25/06/2018 Till now

Qualified GATE 2014 in Chemical Engineering with score of 436 and All India Rank 1558.



Indore Institute of Science and Technology

Event Report (Off Campus)

Academic Year - 2019-20

Session: July - Dec 19

Name of Event: National Conference (Guest Lecture/Seminar/Workshop)

Date of Event: 17/10/19 to 19/10/19, Topic: Chemical Engg. technologies for green Environment

Organizing Dept.: Chemical Dept., Event Coordinator: Mrs. Samatha Singh
SRIET Ankleshwar

Name of Partner / co-organizer (If Industry is involved): GIIDC, BEIL, Sajjan India Ltd.

Address: Ankleshwar Gujarat

Contact No.: _____, Email Id: _____

Name of Industry Representative: Ritesh Dhir (Sr. Manager - HR)

Contact No.: 721100253, Email Id: ritesh@sajjan.com

Name of Expert/Guest: Mr. S.V. Satyanarayana

Institute / Company: TICHE

Designation: President, Department: Chemical Engg.

Address: _____

Contact No.: 033-24146670, Email Id: tichehg@gmail.com

Details of Participants:

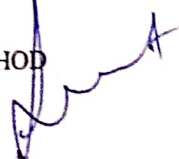
No. of Institutes Participated	No. of Students Participated	Department	No. of Industry Representative	Remark if any
		CSE/IT/EC/ME/CM/ESH		
<u>35</u>	<u>11</u>	<u>CM</u>	<u>07</u>	

*Please enclose a detailed list.

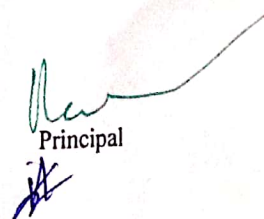
Also enclosed following details:

1. Approval Letter ✓
2. Invitation card/Brochure / Leaflet (if printed by Institute or Organizing Partner) print/Social
3. Detailed summary on event. (Outcome) ✓ with FB
4. Media Report (attach copy of newspaper)/ write-up for media/ FB write-up ✓
5. Certificate / Letter (if printed by Institute or Organizing Partner) ✓

HOD



Principal



Department of Chemical Engineering
Indore Institute of Science & Technology, Indore

Note Sheet

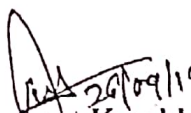
We are happy to communicate that our students papers selected in Schemeon 19 organised by Indian Institute of Chemical Engineers (IICHE), at SRICT, Ankleshwar, Dist: Bharuch, for our Students from 17th October to 19th October 2019.

It is requested to kindly sanction 50% of registration fee i.e. Rs.450 (Rs. 900/2) per student and for faculty Rs. 2700 (Rs. 2000 registration fee + Rs. 100 Industrial visit + Rs. 600 Statue of Unity visit). Rs.800(2 days) accommodation, Rs. 500 for travelling and DA (Rs.450*4.= Rs.1800) for the faculty during the tour as per the institutional policy.

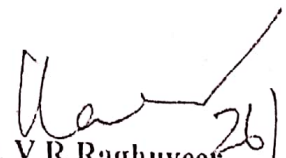
The list of students and faculties are as follows.


S.NO	NAME	YEAR	Payment
	Mr. Prashant Kumbhkar	Asst.Prof.	5800
1	Fridos Ansari	IV	450
2	Rakhi Aarkh	IV	450
3	Satyansh Shukla	IV	450
4	Aniket Patrikar	III	450
5	Pritam Kumar	III	450
6	Rajkumar Dhakad	III	450
7	Ayush Chouhan	II	450
8	Kavya Mishra	II	450
9	Pragya Balathiya	II	450
10	Shagun Parihar	II	450
11	Bisal Samantha	II	450
	Total		10750

Note:- I, Prashant Kumbhkar (Asst. Prof.) will be on duty from 16/10/19 to 19/10/19 (4 days) so please grant DL.


Mr. Prashant Kumbhkar
Asst. Professor


Mrs. Samatha Singh
Head


Dr. V.R. Raghuveer
Principal

To A/C 
Approved by DB si ✓

- entry to the Poster area;
- entry to the parallel Conference Symposium;
- industry-institute interactive session
- registration kit;
- entry to cultural evening
- 2x Early morning breakfast
- 2x lunch during the conference
- dinner after cultural evening (first day)

Indian Delegates	IChE Member*	Non-member
Student (UG)	Rs 700/-	Rs. 900/-
Students (PG)	Rs. 900/-	Rs. 900/-
Research Scholar	Rs. 1000/-	Rs. 1500/-
Industrial Personnel	Rs. 2000/-	Rs. 3000/-
Academia	Rs. 1500	Rs. 2000/-
Accompanying Person	Rs. 600/-	Rs. 800/-
Overseas Delegates	\$150	

Bank details for registration:

Schemcon 19

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Ankleshwar branch

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IFSC code: HDFC0000255

Contact no. 9617294626

Registration Form

Accommodation

Things you need to know before filling accommodation form:

The registration for accommodation has to be done before 25th September 2019

The facility for accommodation will be available at two locations viz. hostels and Ankleshwar hotels.

A bus facility will be provided for students staying out of college campus on registration.

College hostel has limited vacancies and it will be allotted on a first-come, first-serve basis.

Girl participants will be given priority for the college hostel.

Every individual participant has to register for accommodation who wants to avail the facility.

Check-in time for hostel & hotel will be 11:00 am. For e.g. if you arrive at 08 a.m., a day would be accounted as a duration of stay. And

POWERED BY

- Hostel stay will be for 3 participants per room and hotel stay will be for 2 participants per room.
- The tariff for Hostel (Non A/C) will be 400/- per day/person
- The tariff for Hotel (Non A/C) will be 400/- per day/person
- The tariff for Hotel (A/C) will be 500/- per day/person
- Organizing committee will try its best to accommodate candidates from same institute at same location
- Before registering through the link provided below, kindly make online payment as one has to upload transaction receipt for accommodation
- You may contact organizing committee (accommodation head) in case of any query: 9819713229

[Register For Accommodation](#)

PRODUCTION OF ACTIVATED CARBON USING MUNICIPAL SOLID WASTE / PACE TOWARDS REFINED ENVIRONMENT

¹Mrs. Samatha Singh, ²Mr. Prashant Kumbhkar, ³Satyansh Shukla, ⁴Firdaus Ansari, ⁵Rakhi Aarkh

¹Associate Professor, ²Assistant Professor, ³Student, ⁴Student, ⁵Student

^{1,2,3,4,5}Department of Chemical Engineering,

^{1,2,3,4,5}Indore Institute of Science & Technology, Opposite IIM, Pithampur Road, Rau, Indore-453331, Madhya Pradesh, India

Introduction

Environmental problems due to plastic wastes are much higher in these days. These plastic wastes either incinerated or dumped in landfills.

Best way to consume these wastes are to convert them into a refuse derived fuel (activated carbon).

Plastic wastes are substantial source of polyethyleneterephthalate (PET) polymer, the properties of this polymer especially its porous structure is more suitable for the production of activated carbon.

Activated Carbon are used as commercial adsorbent which have many applications like gas purification, solvent recovery and waste water treatment and it can be used as electrode material in supercapacitors. Adsorption by Carbon is still very economically for industries and this fact increases the necessity to convert.

This is very conventional and eco-friendly way to recycle these wastes.

Methods

Physical or Chemical activation are the two methods to produce activated carbon. Physical activation requires two steps, carbonization and activation at high temperature in the presence of oxidizing agent.

Chemical activation is a typical process because it requires a complex recovery and recycle of activating agent.

Characteristics Required In Activated Carbon

Following are the main characteristics required in Activated carbon:-

Carbon yield
Burn-off percent
Iodine number
Apparent Density
Ash Content
Conductivity
Surface area
Pore Size Distribution
Surface functional groups
Surface topography

Condition Required For Production

The activation time and temperature required for optimum condition are 240min(4 hours) and 975°C with 65% of burn-off¹.

The Carbonization time and temperature required for optimum condition are 60min (1 hour) and 800°C.¹

Heat flow rate of carbonization and activation of PET is 10k/min.¹

Flow rate of N₂ & CO₂ are 200 ml/min & 100ml/min.¹

Experimental set up

Fig.1 shows the experimental setup where activation and carbonization was done. Four sample taken in consideration at different set of activation temperatures and time.

First activation were carried out at 1173K for 8 hours, followed by the second at 1198K for 6 hours, third at 1213K for 4 hour and the final sample at 1213K for 8 hours. A commercial Activated carbon (NR3ex) were also taken in consideration to find out the difference between PET produced carbon and commercial carbon.

The respective samples were denoted by



Fig.1 Schematic layout of the tube furnace setup (a) furnace, (b) PET waste, (c) flow meter, (d) valve, (e) N₂, (f) CO₂, (g) CUC capsule¹

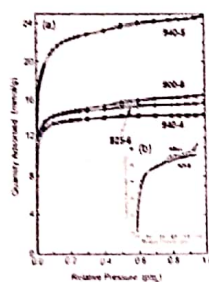


Fig.2 N₂ adsorption-desorption isotherm at 77.4K of activated carbon derived from waste PET (a) and isotherm comparison for NR3ex and 925-6 samples (b).²

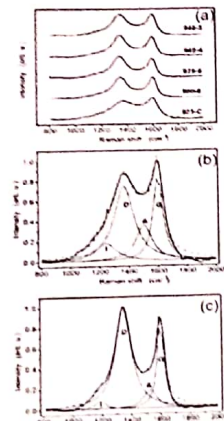


Fig.4 Normalized Raman spectra of as obtained and activated carbonized deconvoluted spectra of carbonized 825-C (b) and activated carbon 925-6 (c).¹

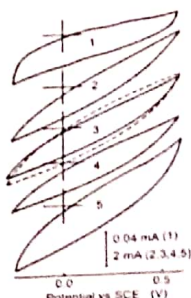


Fig.6 Cyclic voltammograms of the powdered carbon electrodes prepared from the samples tested: 1-825-C, 2-900-8, 3-925-6, 4-940-4, 5-940-5. Dashed line - NR3ex²

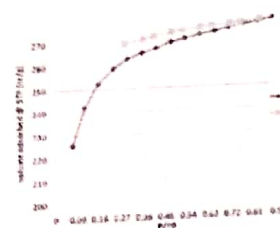


Fig.8 Hydrogen adsorption isotherm for 940-5 activated carbon at 77.3K.¹

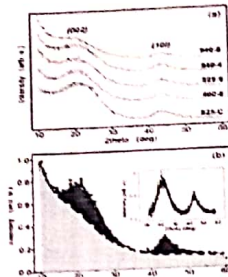


Fig.3 Normalized X-ray powder diffraction pattern for as obtained and activated carbonized (a) diffraction pattern of sample 925-6 with marked areas background (b).⁴

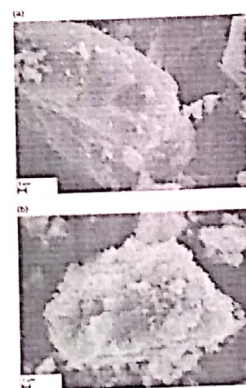


Fig.5 SEM micrographs of 925-6 (a) and NR3ex (b) carbon samples¹

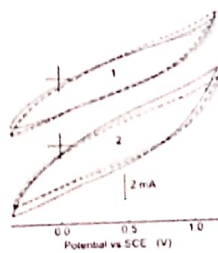


Fig.7 CVs of 925-6 (1) and NR3ex (2) samples in blank electrolyte (first cycle solid line) and with 2mM CP (first cycle - dashed line, steady state - dotted line).²

Result and Discussion

Sample	Burn-off%	S _{BET} (m ² /g)	S _{me} (m ² /g)	V _{me} (cm ³ /g)	V _{mi} (cm ³ /g)
900-8	37.3	1210	26	0.052	0.413
925-6	38.8	1180	15	0.027	0.405
940-4	37.8	1110	8	0.010	0.397
940-5	59.2	1830	61	0.096	0.604
NR3ex	-	1120	28	0.040	0.404

- BO of activated carbon 900-8, 925-6 and 940-4 were relatively low and similar to each other.
- 940-5 sample has high in values.
- Activation effects was evaluated by low-temperature nitrogen adsorption-desorption isotherms (fig.2).
- Solid products after activation and carbonization were structurally characterized by Raman spectroscopy and X-ray diffraction.
- CV of commercial NR3ex activated carbon electrode in blank solution is similar in currents and shape values to the PET activated carbon electrode (fig.6).
- These results were taken from Research Paper [2].

Conclusion

- The porosity and Surface area of activated carbon is totally depend on the activation time and temperature, by decreasing the activation time and increasing activation temperature the degree of burn off can be maintained.
- The activated carbon have significant capacity to store Hydrogen in it.
- These results shows that it is possible to manufacture activated carbon from PET waste with satisfactory characteristics by the method of physical activation.
- PET activated carbon have great potential to use as a electrode materials in supercapacitors or fuel cells.

Acknowledgement

Author would like to thank her advisor Associate Professor Mrs. Samatha Singh. The support of our mentor Mr. Prashant Kumbhkar, the Department of Chemical Engineering and the Indore Institute of Science & Technology is appreciated.

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Production of Biodegradable Plastics based on 3-Hydroxybutyric acid and Lactic Acid

Aniket Patrikar¹, Pritam Kumar², Rajkumar Dhakad³, Kavya Mishra⁴

^{1,2,3,4} B.Tech Student, Department of Chemical Engineering, Indore Institute of Science & Technology, Indore, MP, India

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ABSTRACT

Bio-plastics or a plastic produced by the microorganism is a promising replacement for the conventional synthetic plastics. Bio-plastics can be termed as plastics made up of plant material i.e. biomass such as corn, sugarcane etc. These substances have been progressively center staged as a way of saving fossil fuels, reducing CO₂ emission and plastic wastes. The common types of bio-plastics are based on starch, poly lactic acid (PLA), cellulose, Poly-3-hydroxybutyrate (PHB), Polyhydroxyalkanoates (PHA). The production of bio-products from various biological feedstock has been explored in an effort to enable sources of renewable and biodegradable plastics. Biodegradability of Bio-plastics has been widely advertised in society and the demand for packaging is rapidly increasing among retailers and the food industry at large scale. Therefore, it is demanded that biodegradable plastics should be produced and used.

Keywords: Biodegradable plastics, Biopolymers, Poly 3-hydroxybutyric acid, Poly lactic acid.

INTRODUCTION

The accumulation of plastic materials in the Earth's environment affects wildlife and human. The space for disposal and growing environmental concerns for non-biodegradable synthetic plastics has raised the interest to research towards development of eco-friendly biopolymer materials.⁽¹⁾ Comparing the production of Biodegradable plastics and oil based plastics, for more than 30 million tons of oil-based plastic produced a year, the production of biodegradable plastics was less than 200,000 tons per year.⁽²⁾ The biodegradable plastics has commercial potential to substitute polyolefin group like polypropylene (PP), polyethylene (PE), etc. Due to high cost and limited availability of biodegradable plastics, the market exposure is not so effective. Bioplastics are biodegradable materials that are made from renewable sources. Bioplastics can be made by many natural sources and materials, such as: Plant Oil, Cellulose, Corn Starch, Potato Starch, etc.⁽³⁾

CLASSIFICATION

The Flow diagram shows the classification of the biodegradable polymers into two groups and our different families. The main groups are

- The agro based polymers (polysaccharides, proteins, etc.)
- The bio polyesters (biodegradable polyesters) such as poly lactic acid (PLA), poly hydroxyalkanoate (PHA), etc.

The common types of bio-plastics are based on cellulose, starch, poly lactic acid (PLA), poly-3-hydroxybutyrate (PHB).

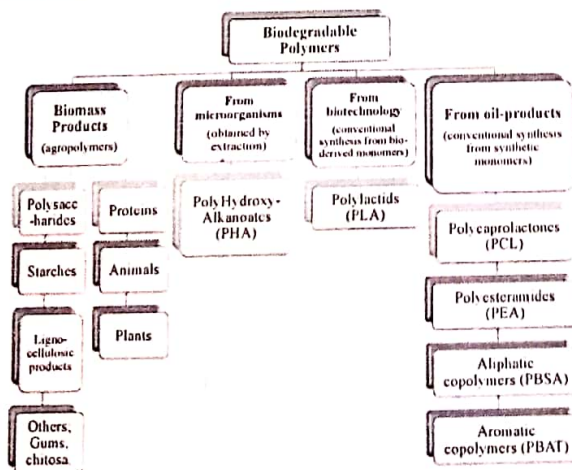
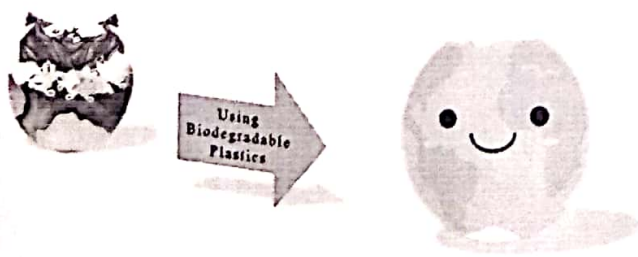


Fig.1 Shows the classification of Biodegradable polymers²



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LITERATURE REVIEW

*Anshuman A, Khardenavis et al., conducted an experiment on Biotechnological conversion of agro industrial wastewaters into biodegradable plastic, poly 3-hydroxybutyrate.

*Various Wastewater samples and activated sludge as biomass used as raw materials for PHB accumulation.

*The activated sludge was added to all three samples and then these conical flasks were placed on rotary shaker.

*30mL of samples were removed after 48h and 96h to calculate the concentration of PHB in biomass.

*The PHB produced by this method have relatively low cost than other commercial methods.

*The rice grain-based distillery spentwash gives maximum 67% of PHB.

*R. Lakshmana Reddy et al., conducted a Study of Bio-plastics As Green & Sustainable Alternative to Plastics

*The fermentation of the starch of crops like corn, potato etc produces Lactic acid.

*The Lactic acid is then polymerized by three processes:

- a. condensation polymerization
- b. azeotropic dehydrative condensation
- c. Ring Opening Polymerization (ROP).

*To produce PHB the bacterium named Cupriavidus nectar is used.

*PHB is extracted by rupturing the bacterial cells using alkaline solution.

*The properties of PLA & PHB like 100% Biodegradable etc. make it an alternative to the non degradable plastics.

*Sabbir Anari et al., made study on Polyhydroxybutyrate - a Biodegradable Plastic and its Various Formulations

*The synthesis of PHB involves glucose as carbon source.

*This accumulates upto 80% of its dry weight.

*PHB has poor mechanical properties which leads to its limited applications.

*However, PHB blends can help to improve its properties

METHODS

Poly Lactic Acid (PLA)

*Lactic acid is produced commercially by fermentation of carbohydrates such as glucose, sucrose, or lactose, or by chemical synthesis.

*The fermentation process can be classified on the basis of bacteria used.

1. The heterofermentative method (produces less than 1.8 mol of lactic acid per mole of hexose).
2. The homo-fermentative method (industrial process; yield > 90%).

*The synthesis of PLA is a multistep process which starts from the production of lactic acid and ends with its polymerization. The Methods used to polymerize Lactic acid are:

- a. Condensation Polymerization: Lactic acid is condensation polymerized to produce low molecular weight, brittle polymer, which is unusable. Here, external coupling agents are used to increase its chain length.
- b. Azeotropic dehydrative condensation: It can produce high molecular weight PLA without the use of external coupling agents.
- c. Ring Opening Polymerization (ROP): ROP is the main process to produce high molecular weight PLA.



Fig.2 shows the flow chart of PLA³

Poly 3-hydroxybutyric acid (PHB)

There are two main process of producing PHB:

a) Laboratory production of PHB:

1. Wastewater is used as sample, filled 100mL in 250mL conical flask.
2. The activated sludge (0.23g of dry weight equivalent) added to sample and placed on rotary shaker at 150rpm at 30±2°C.
3. 30mL of sample was taken after the interval of 48h and 96h and analyzed for PHB concentration in biomass.
4. The presence and characterization of PHB in raw sludge biomass from source was confirmed by FT-IR.⁽⁴⁾

a) Enzymatic breakdown of water hyacinth powder:

- a. The dried and crushed water hyacinth converted into fine powders and subjected it to acid and enzyme treatment in the presence of water.
- b. The end product is used to produce a bacterium in the presence of nitrogen source which is known to produce PHB.
- c. As the bacteria grew, PHB starts to accumulate inside them.
- d. Researchers used alkaline solution to rupture the bacterial cell and extract PHB from it.

CONCLUSION

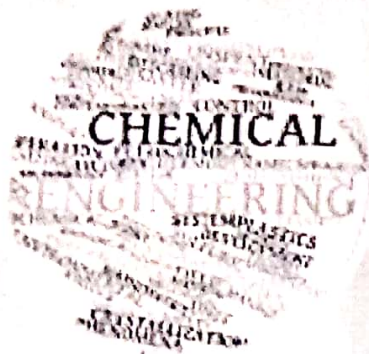
As the plastic pollution is increasing and as the oil-based polymers are causing harm to the environment. The production of oil-based plastics should be decrease, and we should opt for Biodegradable plastics like PLA and PHB

both are renewable and bacterially synthesized, completely biodegradable, burned without producing toxic byproducts etc.

However, a disadvantage like higher production cost remains the main concern.

The methods of production of PLA and PHB should be taken under development and as per the environment is concerned the production of PLA and PHB should increase.

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13. Kale C, Auras R, Singh SP., "Comparison of the degradability of poly(lactide) packages in composting and ambient exposure conditions," Pack Technol Sci Vol 20, pp. 49-70, 2007.



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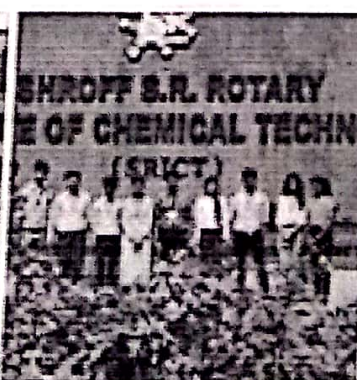
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Posts




Chemical Engineering Department, IIST Indore
21 October at 20:11 · Q

Students of Chemical Engineering Department, IIST Indore has successfully participated and presented their research work in National Conference SCHEMCON 2019 Organized by Student Chapter of Indian Institute of Chemical Engineers (IICChE) and Shroff S.R. Rotary Institute of Chemical Technology (SRICT), Ankleshwar, Gujarat. Final year students Satyansh Shukla, Rakhi Aarkh and Firdous Ansari presented poster on "Production of Activated Carbon using Municipal Solid Waste/ Face towards refined Environment". Third year students Aniket Patrikar, Rajkumar Dhakad and Pritam Kumar presented poster on "Production of Biodegradable Plastic based on 3 hydroxybutyric acid and lactic acid" and Second year students Pragya Balothiya, Shagun Panihar, Aayush Chouhan, Ehsal Samanta and Kavya Mishra presented poster on "Microbial Fuel Cell" under their SIG activity. In the part of their tour they got know the practical knowledge by visiting various core chemical industries like Bharuch Enviro Infrastructure Ltd, GIDC, Sajjan India Ltd, BHEL etc. on the last day students also witnessed the magnificent "Statue of Unity", the engineering marvel.





Rotary 

 SCHEMCON
2019



UPL



SRICT

15th Annual Session of Students' Chemical Engineering Congress

Organized By

*Students Chapter of IChE, Department of Chemical Engineering,
Shroff S. R. Rotary Institute of Chemical Technology*

Certificate

This is to certify that Dr./Mr./Ms. Mr. Prashant Kumbhkar
from Andora Institute of Science & Technology of has Attended/successfully presented
oral/poster/MP Chary Paper as a part of "15th Annual Session of Students' Chemical Engineering Congress" organized by
Department of Chemical Engineering of Shroff S. R. Rotary Institute of Chemical Technology, Ankleshiwar, Gujarat, held
on 17-18 October 2019.

Dr. Shina Gautam
Organizing Secretary

Dr. Alok Gautam
HoD, Chemical Engineering, SRICT

Dr. Snehal Lokhandwala
Principal, SRICT

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Shroff S R Rotary Institute of Chemical Technology

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Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAH126Q1ZQ PAN : AAAAH126Q

Receipt No. : 405 Date : 16/10/19

Received with thanks from Rajkumar Thakad

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar

Towards Registration in schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque

SCHEMCON 2019
Department of Chemical Engineering
Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAH126Q1ZQ PAN : AAAAH126Q

Receipt No. : 404 Date : 16/10/19

Received with thanks from Satyamsh Shukla

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar

Towards Registration in schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque

SCHEMCON 2019
Department of Chemical Engineering
Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAI126Q1ZQ PAN : AAAAII126Q

Receipt No. : 408 Date : 16/10/19

Received with thanks from Fidias Ansari

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar

Towards Registration In schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque

Signature

SCHEMCON 2019
Department of Chemical Engineering
Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAI126Q1ZQ PAN : AAAAII126Q

Receipt No. : 407 Date : 16/10/19

Received with thanks from Paitam Kumar

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar

Towards Registration In schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque

Signature

SCHEMCON 2019
Department of Chemical Engineering
Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAI126Q1ZQ PAN : AAAAII126Q

Receipt No. : 426 Date : 17/10/19

Received with thanks from Faahin Khan

The sum of Rupees Two thousand Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 17/10/19

Drawn on Bank HDFC Ankleshwar

Towards Registration In schemcon

Rs. 2900

This receipt is valid subject to realization of cheque

Signature

SCHEMCON 2019
Department of Chemical Engineering
Shroff S R Rotary Institute of Chemical Technology

GSTIN. : 24AAAAI126Q1ZQ PAN : AAAAII126Q

Receipt No. : 406 Date : 16/10/19

Received with thanks from Aniket Patraikar

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E Payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar

Towards Registration In schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque

Signature



SCHEMCON 2019

Department of Chemical Engineering

Shroff S R Rotary Institute of Chemical Technology



GSTIN. : 24AAAI1126Q1ZQ

PAN : AAAAI1126Q

Receipt No. : 411

Date : 16/10/19

Received with thanks from Rakhi Asakh

The sum of Rupees Nine hundred only

By Cash/Cheque/D.D.No. E payment Dated 23/9/19

Drawn on Bank HDFC Ankleshwar


Towards Registration in Schemcon

Rs. 900/-

This receipt is valid subject to realization of cheque



शुभ यात्रा		HAPPY JOURNEY	
प्री एन आर नं. SAC: 992421	ग्राही नं. BBAAGH10289C17	तिथि 16-10-2019	टिकट नं. 05840141
840-1286569		12962	16-10-2019 438
श्रेणी CLASS	JOURNEY CUM RESERVATION TICKET		PRS-CSMT
शया इंदौर जं.	वजोदरा जं.	अवन्तिका एक्सप्रेस	
कोच COACH	सीट/बर्थ SEAT/BERTH	लिंग SEX	आयु AGE
यात्रा अधिकार पत्र T.AUTHORITY	रियायत CONC.	आ.शु. R. FEE	सु.आ. SF.CH.
वाजचर र. VOUCH. RS.	कु. नकद र. T.CASH RS.	882	
S4 20 LB	M 18	711334	STDNT 120 180 1020
S4 21 MB	F 18	711334	STDNT Rs.ONE ZERO TWO ZERO ONLY
S4 6 UB	F 18	711334	STDNT VALID WITH ORIGINAL ID
S4 8 SU	F 18	711334	STDNT
S4 16 SU	M 18	711334	STDNT
S4 27 UB	M 26	711334	STDESC
AVANTIKA EXP BRD INDORE JN BG SCH DEF 16-10 16:15 AFR 16-10 23:46			
882 26-09-2019 12:55:57 INDB 9 VIA WUN -NAD -RTM			

Total amt incl all chrg																			
शुभ यात्रा 					HAPPY JOURNEY														
पी एन आर नं. SAC: 984421		गाडी नं. GSTIN-IR: 22AAAG10289C1Z		तिथि DATE: 16-10-2019		कि.मी. STATE: INDIA		वयस्क SUFF: 023		बच्चे CHILD: 0		टिकट नं. TICKET NO: 05840139							
851-1258527		12962		16-10-2019		438		6		0		/05840139							
श्रेणी CLASS		JOURNEY CUM RESERVATION TICKET																	
राया इंदौर जं.												वाडोदरा जं.		तक आरक्षित/RES. उपसप्रेस					
कोच COACH		सीट/बर्थ SEAT/BERTH		लिंग SEX		आयु AGE		यात्रा अधिकार पत्र TA AUTHORITY		रियायत CONC		आ. शु. R FEE		सु. आ. SF CH.		वाऊचर रु. VOUCH. RS		कु. नकद रु. T. CASH RS.	
S4 9 LB		F 20		711334		STDNT		120		180		1020							
S4 10 MB		F 20		711334		STDNT		Rs. ONE ZERO TWO ZERO ONLY											
S4 11 UB		M 20		711334		STDNT		VALID WITH ORIGINAL ID											
S4 12 LB		M 19		711334		STDNT													
S4 13 MB		M 19		711334		STDNT													
S4 14 UB		M 19		711334		STDNT													
AVANTIKA EXP										FROM INDORE JN BG									
341 26-09-2019 12:53:47 INDB 9 VIA UTH										NAD -RTM									

Date: 18/11/2019 to 19/11/19

पश्चिम रेलवे WESTERN RAILWAY

एस एन 241 बी
SN 241 B

विद्यार्थियों को शैक्षणिक यात्रा के लिए रिआयत प्राप्त करने के वास्ते प्रमाण-पत्र
* Certificate for obtaining Students' Concession for Educational Tours

प्रेषक From: Indore Institute of
Sanskrit & Technology

संख्या

सेवा में To

स्कूल, कॉलेज या संस्था के कार्यालय की मोहर
Office Stamp of the School
College or Institution

स्टेशन मास्टर The Station Master,
Indore स्टेशन Station
रेलवे Railway

यह प्रमाणित किया जाता है कि निम्नलिखित (संख्या अक्षरों में) लड़के/लड़कियाँ इस स्कूल/कॉलेज/संस्था के/की वास्तविक छात्र/छात्राएँ हैं और वे भारतवर्ष के केन्द्रालंकित स्थानों की शैक्षणिक यात्रा करने के लिए/के बाद अपने अपने स्कूलों/कॉलेजों या संस्थाओं से/के लिए प्रस्थान कर रहे हैं।

This is to certify that 10 Students boys/ girls named below are (number in words)

bona fide students of my School / College / Institution and are proceeding on educational tours from / to his / her / their School / College / Institution for / after visiting places of artistic importance in India.

2. यह यात्रा (स्कूल / कॉलेज/संस्था का नाम) Indore Institute of Sanskrit & Technology के द्वारा आयोजित की गई है।

The tour is sponsored by (Name of School / College / Institution)

3. वे Indore स्टेशन से Prithvi स्टेशन तक यात्रा करेंगे। कृपया इस यात्रा के लिए उनके नाम रिआयती टिकट जारी किए जाएँ।

They are travelling from (Station) to (station)

and concession tickets for their journey may please be issued.

टिप्पणी : (i) वापसी टिकट जारी नहीं किए जाते हैं। प्रत्येक यात्रा के लिए अलग आवेदन-पत्र भेजा जाए।

Note: Return tickets are not issued. A separate application should be made for each journey.

(ii) जो इंदराज लागू न हो उन्हें काट दिया जाए। Entries not required should be scored out.

(iii) विदेशों की शैक्षणिक संस्थाओं के विद्यार्थियों के लिए भी यह रिआयत उपलब्ध है, बशर्ते कि ऐसी पार्टी में विद्यार्थियों की संख्या 15 से कम न हो। जिसमें मार्गरक्षी (एस्कॉर्ट) शामिल नहीं है।

(iii) The concession will also apply to students of Educational Institutions of foreign countries when in parties of not less than fifteen (excluding escorts).

क्रम संख्या S. No.	विद्यार्थियों के नाम Names of Students	लड़का या लड़की Sex	आयु Age
1	Rishabh Anand	M	20
2	Rishabh Anand	M	20
3	Satyam Shukla	M	20
4	Aniket Patel	M	17
5	Pratham Kumar	M	17
6	Rishabh Shukla	M	17
7	Ayush Chandra	M	18
8	Levya Mishra	F	18
9	Pragya Beldangi	F	18
10	Shagun Parhar	F	18
11	Rishabh Samant	M	18
12			
13			
14			
15			

विद्यार्थी की पर्णी STUDENT'S FOIL 3.

(क.पू.उ. P.T.O.)

(इसे गंतव्य स्टेशन पर टिकट के साथ वापस किया जाय To be surrendered at the destination alongwith the ticket/tickets)

PRODUCTION OF BIODEGRADABLE PLASTIC BASED ON 3-HYDROXYBUTYRIC ACID AND LACTIC ACID: A REVIEW

Rajkumar Dhakad¹, Kavya Mishra², Aniket Patrikar³, Pritam Kumar⁴

^{2,3,4}B.Tech Student, Department of Chemical Engineering, Indore Institute of Science & Technology, Indore, MP, India

Abstract

Bio-plastics or a plastic produced by the microorganism is a promising replacement for the conventional synthetic plastics. Bio-plastics can be termed as plastics made up of plant material i.e. biomass such as corn, sugarcane etc. These substances have been progressively center staged as a way of saving fossil fuels, reducing CO₂ emission and plastic wastes. The commontypes of bio-plastics are based on starch, poly lactic acid (PLA), cellulose, Poly-3-hydroxybutyrate (PHB), Polyhydroxyalkanoates(PHA). The production of bio-products from various biological feedstock's has been explored in an effort to enable sources of renewable and biodegradable plastics. Biodegradability of Bio-plastics has been widely advertised in society and the demand for packaging is rapidly increasing among retailers and the food industry at large scale. Therefore, it is the demanded that biodegradable plastics should be produced and used.

Keywords: Bioplastic, Biodegradability, Polylactic Acid.

MICROBIAL FUEL CELL (MFC) : A NOVEL TECHNOLOGY FOR ELECTRICITY GENERATION AND BOD, COD REMOVAL FROM WASTE WATER COUPLED WITH NANOTECHNOLOGY

Samatha Singh

Bisal Samanta, Ayush Chouhan, Pragya Balothiya, Shagun Parihar

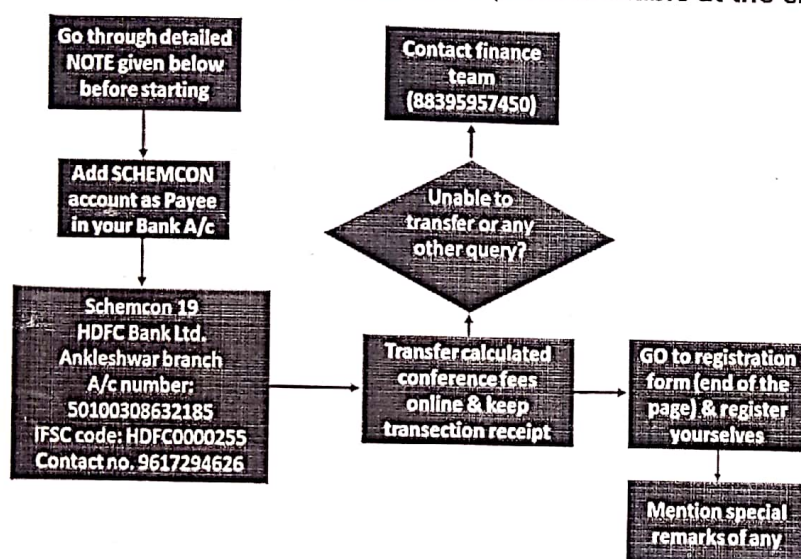
Indore Institute of Science and Technology, Department of Chemical Engineering ,
OPP.I.I.M., Pithampur Road , Rau, Indore-453331, Madhya Pradesh , India

Corresponding author e-mail id : samatha.singh@indoreinstitute.com,

century waste water treatment and energy generation are the key factor for any economically developing country. The Solution for this is the MFCs. MFCs are bio electrochemical systems that use bacterial metabolism to transform chemical energy into electricity. The micro-organisms present in the anode chamber oxidize the matter present in a given substrate generating protons and electrons. While the electrons are externally led to the cathode to obtain an electrical current, protons migrate from the anode to the cathode normally through a membrane and combine with electrons and oxygen to form water at the cathode. Carbon-based nanomaterials have emerged as promising materials for both anode and cathode construction. Here we demonstrate the potential to enhance the power extraction by exploiting biogenic inorganic nanoparticles to facilitate extracellular electron transfer in MFC's. Our approach of interconnecting and electrically contacting bacterial cells through biogenic nanoparticles represent a unique and promising direction in MFC research and has the potential to advance our fundamental knowledge about electron transfer process in these biological systems. MFCs well performed well for BOD removal for the waste water.

Keywords: Bio electrochemical, Microbial fuel, Nanoparticles, Extracellular, biogenic.

Registration has been extended till 23rd September 2019
The registration for Accommodation has been started. The last date for accommodation registration is 25th September 2019 (form available at the end of page)



Note:

1. One team can have maximum 4 person in a team
2. Each members has to register (if they are attending/if one wants certificate)
3. One participant can present one paper and/or poster. Organizing committee insist second author to present paper in case of second paper.
4. IICChE member has to bring identity card to avail the concession
5. Accommodation will be provided (on a shared basis: 3 to 4 student/room) on payment basis (300-400 approx/day). The payment for the same can be done on the day of your registration but it has to be clearly mentioned in registration form.
6. Industrial visit (any one of following: UPL/Lupin/Godrej/Abbott) is scheduled on second day after valedictory program. A nominal charge of Rs. 100/- (for transportation) has to be paid along with registration to opt for industrial visit. It is not mandatory to opt for Industrial visit.
7. Visit to Statue of Unity (SoU) is arranged on a third day i.e. 19th October 2019. The registration fee does not include visit to SoU. A separate fee of approximately Rs 600/- per person has to be made to opt for a visit. The SoU visit charge includes: transportation, sight seeing fee of SoU, valley of flowers etc., breakfast and lunch. The charges for SoU visit may vary a bit. We shall fix the effective SoU charges by 01st August 2019 before registration begins.
8. Any one not presenting paper/poster can also attend the program. He/She will get a participation certificate but he/she has to register

POWERED BY

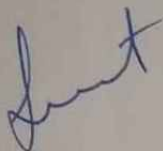
DATE: 25/05/2020

Approval Letter

Department of Chemical Engineering interested to organize One-week Training on
Process engineering Calculation on Aspen HYSYS & Aspen EDR under IICHE
from **29th May 2020 onwards.**

Kindly approve for organizing the Training in the department.

Proposal and Budget enclosed herewith.



HOD CM



PRINCIPAL



Indore Institute of Science & Technology, Indore
Department of Chemical Engineering
Training for Advance Process Calculation for chemical Engineers

Batch - 2019-2023

S.No.	Enroll. No.	Student Name	SYNDICATE	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
1	0818CM191002	ADITI NARWARE	RG	P	P	P	P	P	P
2	0818CM191003	AMAN ANSARI	PK	NOT RECEIVED	P	P	P	P	P
3	0818CM191006	ANJALI BHARTI	PK	P	P	P	P	P	P
4	0818CM191007	ANJALI SACHIWANI	RG	P	P	P	P	P	P
5	0818CM191008	ASHITA SINGH	RG	Health Issue	P	P	P	P	P
6	0818CM191009	AYUSH SAHU	RG	FAMILY ISSUE	P	P	P	P	P
7	0818CM191011	AYUSH SURYAWANSHI	RG	P	P	P	P	P	P
8	0818CM191012	AZAD	RG	P	P	P	P	P	P
9	0818CM191013	BHUPENDRA SUPNOUR	PM	P	P	P	P	P	P
10	0818CM191014	CHETAN YADAV	PK	P	P	P	P	P	P
11	0818CM191015	DEEPIYUJI SINHA	PM	P	P	P	P	P	P
12	0818CM191017	DISHA GAWANDE	PK	P	P	P	P	P	P
13	0818CM191018	GARIMA RAJPUT	PK	P	P	P	P	P	P
14	0818CM191019	HIMANSHU VYAS	PK	P	P	P	P	P	P
15	0818CM191020	JAYESH PANDIYA	RG	P	P	P	P	P	P
16	0818CM191021	KRISHNA RAO DONGRE	RG	P	P	P	P	P	P
17	0818CM191022	KRUPAL UMBARKAR	RG	P	P	P	P	P	P
18	0818CM191023	MITHULESH BENDE	PK	Factor health issue	P	P	P	P	P
19	0818CM191024	MOHAMMED TANVEER	PK	Health Issue	P	P	P	P	P
20	0818CM191025	MUSKAN GANGWANI	RG	P	P	P	P	P	P
21	0818CM191027	NAYNEET SHARMA	PK	P	P	P	P	P	P
22	0818CM191028	NIKHIL BASANT MESHARAM	PK	P	P	P	P	P	P
23	0818CM191029	PIYUSH PATIDAR	PK	TRY TO CONNECT	P	P	P	P	P
24	0818CM191030	PRABHU RANJAN SAXENA	RG	P	P	P	P	P	P
25	0818CM191031	PRATIMA PATEL	PK	P	P	P	P	P	P
26	0818CM191032	PRITISH KARMAR	RG	P	P	P	P	P	P
27	0818CM191033	PURVA CHOUDHARY	RG	P	P	P	P	P	P
28	0818CM191034	RAHUL PAL	RG	P	P	P	P	P	P
29	0818CM191036	RISHABH MEENA	PK	P	P	P	P	P	P
30	0818CM191037	RISHABH NEGI	PK	P	P	P	P	P	P
31	0818CM191038	RISHIKA SHARMA	PK	P	P	P	P	P	P
32	0818CM191040	ROHITH S	PK	FINANCIAL ISSUE:	P	P	P	P	P
33	0818CM191041	SAHIL UDDIN	PK	P	P	P	P	P	P
34	0818CM191042	SANSKRATI JOSHI	PM	P	P	P	P	P	P
35	0818CM191043	SHRASHITI CHANDIL	RG	P	P	P	P	P	P
36	0818CM191044	SIDDHI SHUKLA	PK	P	P	P	P	P	P
37	0818CM191045	SNEHA RAJPUT	PM	P	P	P	P	P	P
38	0818CM191046	SUBHAM VENUGOPAL	PK	P	P	P	P	P	P
39	0818CM191047	SUDHEER CHOUDHARY	RG	P	P	P	P	P	P
40	0818CM191048	UTKARSH PATIL	PK	P	P	P	P	P	P
41	0818CM191049	VANDANA LAKSHAR	RG	P	P	P	P	P	P
42	0818CM191050	VISHAL KUMAR SINGH	PM	P	P	P	P	P	P
43	0818CM191052	VYUHAJ NARUKA	RG	P	P	P	P	P	P
44	LATERAL ENTRY	ADITI KUMARI	PM	P	P	P	P	P	P
45	LATERAL ENTRY	ASHISH SINGH BAIS	PM	P	P	P	P	P	P
46	LATERAL ENTRY	BHUVAN PURANIK	PM	HEALTH ISSUE	P	P	P	P	P
47	LATERAL ENTRY	KISHAN GUPTA	PM	P	P	P	P	P	P
48	LATERAL ENTRY	NIKUND YADAV	PM	P	P	P	P	P	P
49	LATERAL ENTRY	MAHIMA JAISAWAL	PM	OUT OF COVERAGE	P	P	P	P	P
50	LATERAL ENTRY	ROHIT KUNAR GUPTA	PM	P	P	P	P	P	P
51	LATERAL ENTRY	SHUBHA SUNDARAM	PM	P	P	P	P	P	P
52	LATERAL ENTRY	VISHAL PANDEY	PM	P	P	P	P	P	P

14
18
20
52



Batch: 2019-2023

S.No.	Enroll. No.	Student Name	SYNDICATE	Day 1	Day 2	Day 3	Day 4	Day 5	Day 5
1	0818CM191002	ADITIN NAWARE	RG	P	P	P	P	P	P
2	0818CM191003	AMAN ANSARI	PK	NOT RECEIVED		P	P	P	P
3	0818CM191006	ANJALI BHARTI	PK	P	P	P	P	P	P
4	0818CM191007	ANJALI SACHIWANI	RG	P	P	P	P	P	P
5	0818CM191008	ASHITA SINGH	RG	Health Issue		P	P	P	P
6	0818CM191009	AYUSH SAHU	RG	FAMILY ISSUE		P	P	P	P
7	0818CM191011	AYUSH SURYAWANSHI	RG	P	P	P	P	P	P
8	0818CM191012	AZAD	RG	P	P	P	P	P	P
9	0818CM191013	BHUPENDRA SUPNOUR	PM	P	P	P	P	P	P
10	0818CM191014	CHETAN YADAV	PK	P	P	P	P	P	P
11	0818CM191015	DEEPTI SINHA	PM	P	P	P	P	P	P
12	0818CM191017	DISHA GAWANDE	PK	P	P	P	P	P	P
13	0818CM191018	GARIMA RAJPUT	PK	P	P	P	P	P	P
14	0818CM191019	HIMANSHU VYAS	PK	P	P	P	P	P	P
15	0818CM191020	JAYESH PANDIYA	RG	P	P	P	P	P	P
16	0818CM191021	KRISHNA RAO DONGRE	RG	P	P	P	P	P	P
17	0818CM191022	KRUPAL UMBAKAR	RG	P	P	P	P	P	P
18	0818CM191023	MITHILESH BENDRE	PK	Father health issue		P	P	P	P
19	0818CM191024	MOHAMMED TANVEER	PK	Health Issue		P	P	P	P
20	0818CM191025	MUSKAN GANGWANI	RG	P	P	P	P	P	P
21	0818CM191027	NAVNEET SHARMA	PK	P	P	P	P	P	P
22	0818CM191028	NIKHIL BASANT MESHARAM	PK	P	P	P	P	P	P
23	0818CM191029	PIYUSH PATIDAR	PK	TRY TO CONNECT		P	P	P	P
24	0818CM191030	PRABHU RANJAN SAXENA	RG	P	P	P	P	P	P
25	0818CM191031	PRATIMA PATEL	PK	P	P	P	P	P	P
26	0818CM191032	PRITISH KARMAKAR	RG	P	P	P	P	P	P
27	0818CM191033	PURVA CHOUDHARY	RG	P	P	P	P	P	P
28	0818CM191034	RAHUL PAL	RG	P	P	P	P	P	P
29	0818CM191036	RISHABH MEENA	PK	P	P	P	P	P	P
30	0818CM191037	RISHABH NEGI	PK	P	P	P	P	P	P
31	0818CM191038	RISHIKA SHARMA	PK	P	P	P	P	P	P
32	0818CM191040	ROHITH S	PK	P	P	P	P	P	P
33	0818CM191041	SAHIL UDDIN	PK	FINANCIAL ISSUE		P	P	P	P
34	0818CM191042	SANSKRATI JOSHI	PM	P	P	P	P	P	P
35	0818CM191043	SHRASHTI CHANDEL	RG	P	P	P	P	P	P
36	0818CM191044	SIDDHI SHUKLA	PK	P	P	P	P	P	P
37	0818CM191045	SNEHA RAJPUT	PM	P	P	P	P	P	P
38	0818CM191046	SURHAM VENUGOPAL	PK	P	P	P	P	P	P
39	0818CM191047	SUDHEER CHOUDHARY	RG	P	P	P	P	P	P
40	0818CM191048	UTKARSH PATIL	PK	P	P	P	P	P	P
41	0818CM191049	VANDANA LAKSHKAR	RG	P	P	P	P	P	P
42	0818CM191050	VISHAL KUMAR SINGH	PM	P	P	P	P	P	P
43	0818CM191052	VYURAJ NARUKA	RG	P	P	P	P	P	P
44	LATERAL ENTRY	ADITI KUMARI	PM	P	P	P	P	P	P
45	LATERAL ENTRY	ASHISH SINGH BAIS	PM	P	P	P	P	P	P
46	LATERAL ENTRY	BHUVAN PURANIK	PM	P	P	P	P	P	P
47	LATERAL ENTRY	KISHAN GUPTA	PM	P	P	P	P	P	P
48	LATERAL ENTRY	MUKUND YADAV	PM	P	P	P	P	P	P
49	LATERAL ENTRY	MAHIMA JASAWAL	PM	P	P	P	P	P	P
50	LATERAL ENTRY	ROHIT KUMAR GUPTA	PM	OUT OF COVERAGE		P	P	P	P
51	LATERAL ENTRY	SHUBHA SUNDARAM	PM	P	P	P	P	P	P
52	LATERAL ENTRY	VISHAL PANDEY	PM	P	P	P	P	P	P

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FEEDBACK of Internship

Name	Institute Name	Email	How satisfied were you with the internship?	How relevant and helpful do you think it was for your career?	How satisfied were you with the instructor?	What do you have learnt in this Internship?	Do you want such type of internship in future?	Write your review about this internship.
Chandrasekar	IIST Indore	chandrasekar.ayy@gmail.com	4	5	5	The first information regarding process engineering.	Yes	Good experience. I got to know about the facility and the equipment. The facility is very good.
Pooja Saini	Indore Institute of Science and Technology	pooja.saini81@gmail.com	4	4	4	1. Unit testing	Yes	The internship was helpful to me in terms of industrial and real experience.
Archana Chatterjee	Indore Institute Of Science and Technology	archanachatterjee1@gmail.com	5	5	5	Basic and important topics of chemical Engineering which are useful in every industry.	Yes	It was a very interesting experience and the experience is something which is very useful to explain. It was personally mine was very useful in understanding the details and increasing my basic.
Aniket Patilkar	IIST	aniketpatilkar123@gmail.com	4	5	5	Practical applications and problems of book knowledge of Unit testing, pumps, shell heat exchanger, cooling tower, distillation, control and instrumentation, Aspen, HYSYS, Excel and MATLAB.	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
Mayuri Tenke	Laxmanpuri Institute of Technology	mayuritenke123@indoreinstitute.com	5	5	5	Unit testing	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
Pragya	Indore Institute of Science and Technology	Pragya.bhalodra@gmail.com	4	4	5	Unit testing, pump testing, heat exchanger, different reactors, distillation, cooling and heating, industrial automation.	Yes	It was a very interesting experience and the experience is something which is very useful to explain. It was personally mine was very useful in understanding the details and increasing my basic.
Rajkumar Chahal	IIST	982601752@gmail.com	5	5	5	About industrial problems in solving with the help of software.	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
Prithvi Kumar	Indore Institute of Science and Technology, Indore	Prithvi.kumar2017@indoreinstitute.com	5	5	5	Aspen, Excel, MATLAB, flow sheeting, piping.	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
Shivani Sakhere	SGT's Jyotibharati Beldev Engineering college	shivani.sakhere@gmail.com	4	4	4	Basics of process engineering and got hands on with Aspen HYSYS software.	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
MPNAYAK KAUSHAL	Indore Institute of Science and Technology	mpnaya147@gmail.com	5	5	5	How to operate system and gain some knowledge about instrumentation.	Yes	I got some experience and I can use a little bit of my knowledge about instrumentation. I got to know about the process of designing equipment.
Surai Bhatt	Indore Institute of Science & Technology	surai2002@gmail.com	5	5	5	Everything related to designing in the world of chemical engineering.	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.
Kamlesh Patidar	RVCA Laboratories LTD, Raigarh	kamleshpatidar22@gmail.com	5	5	5	Aspen HYSYS	Yes	The overall and the part of course is good and by the instructor I got to know about practical aspects of designing equipment and the process of designing equipment. However, the experience that I have been a problem for me is that.

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**INDORE INSTITUTE OF SCIENCE & TECHNOLOGY
DEPARTMENT OF CHEMICAL ENGINEERING**

LIST OF STUDENTS

S.No.	ENROLLMENT NO.	STUDENT NAME	Year
1	0818CM171001	ANIKET PATRIKAR	III
2	0818CM171002	HARSHIT KHARPE	III
3	0818CM171003	OM TRIPATHI	III
4	0818CM171004	PRITAM KUMAR	III
5	0818CM171006	SACHIN RAJPUT	III
6	0818CM183D01	ABHIJEET DEVRA	III
7	0818CM183D02	RAJKUMAR DHAKAD	III
8	0818CM183D03	RASHI NIGAM	III
9	0818CM181001	ARJUN K.C.	II
10	0818CM181002	ASHISH PAWAR	II
11	0818CM181003	AYUSH CHOCHAN	II
12	0818CM181004	BISAL SAMANTA	II
13	0818CM181005	HARSHIT CHOCHAN	II
14	0818CM181007	HIMANSHU BHAWALE	II
15	0818CM181008	JAYA JHALA	II
16	0818CM181009	KAVYA MISHRA	II
17	0818CM181011	PRAGYA BALOTHIYA	II
18	0818CM181012	SHAGUN PARIHAR	II
19	0818CM181013	TARUN KHEDRE	II
20	0818CM181014	VINAYAK KAUSHAL	II
21	0818CM181015	VISHAL KACHHAWA	II
22	0818CM193D01	NITIN SHRIVASTAVA	II
23	0818CM193D02	SANJAY	II
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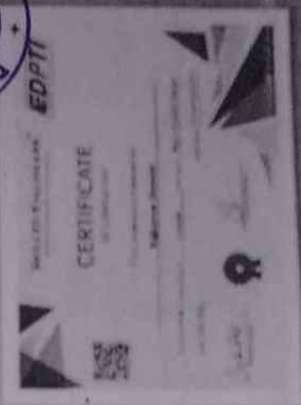
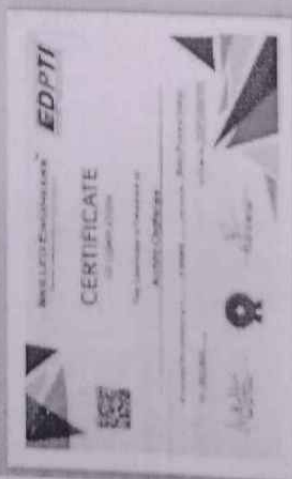
Signature

IIST is proud to extend it's Heartiest
CONGRATULATIONS!!

To our Chemical Engineering Students for successful completion of
Online Training
in association with

Engineering Design & Power Training Institute, Delhi
on

**“Process Engineering Calculation on
Aspen HYSYS & Aspen EDR”**



Department of Chemical Engineering
Indore Institute of Science & Technology, Indore

Date: 25/05/2020

Note Sheet

Subject: Permission for the Training on "Process engineering Calculation on Aspen HYSYS & Aspen EDR under IICHE

We are pleased to inform you that we are planning to organize one week Training on "Process engineering Calculation on Aspen HYSYS & Aspen EDR under IICHE from 29th May 2020 for chemical engineering students of II year.

The learning outcomes of the Training are as follows-

- **Aspen Adsorim** - Fixed bed adsorption for pressure swing adsorption, etc.
- **Aspen Chromatography** - Fixed bed adsorption, simulated moving bed chromatography. Runs independent of Aspen Plus.
- **Aspen Custom Modeler** - A utility to permit the creation of user unit operations.
- **Aspen Distil** - Aspen's 'Conceptual Engineering Product' for planning for processing schemes. Runs independent of Aspen Plus.
- **Aspen Dynamics** - Unsteady-state simulator.
- **Aspen Plus** - Steady-state process simulator.
- **Aspen Properties** - Modeling of properties and phase equilibria. Incorporated into most other components, though it can be run as a stand-alone subset. All of the phase equilibria and mixture property methods discussed on this site are accessible in either Aspen Plus or Aspen Properties.
- **Aspen Polymers** - Modeling of polymerization reactors and polymer thermodynamics. This package is available within Aspen Plus or Aspen Properties rather than via an external menu.
- **BatchSep** - Batch distillations. Runs independently of Aspen Plus.

Certification-

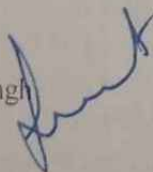
During this whole event following Certificate will be provided:

- At the end of this Training, a small competition will be organized among the participating students and winners will be awarded with a '**Certificate of Excellence**'.

Expenditure- Nil

I request you to give permission to proceed further for the same.

Dr. Samatha Singh
Head



Department of Chemical Engineering
Indore Institute of Science & Technology

NOTE SHEET

Date: 15/05/2020

We are pleased to inform you that we are organising Training on "**Process engineering Calculation on Aspen HYSYS & Aspen EDR under IICHE**" from 29th May 2020. In this we are planning to provide knowledge of ASPEN is a process simulation software package widely used in industry. Given a process design and an appropriate selection of thermodynamic models, ASPEN uses mathematical models to predict the performance of the process. This information can then be used in an iterative fashion to optimize the design. ASPEN can handle very complex processes, including multiple-column separation systems, chemical reactors, distillation of chemically reactive compounds, and even electrolyte solutions like mineral acids and sodium hydroxide solutions.

Dr. Samatha Singh
Head, Chemical Engg. Dept.
IIST, Indore

Dr. Keshav Patidar
Principal
IIST, Indore




Objective

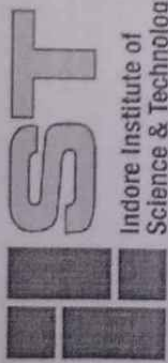
ASPEN is a process simulation software package widely used in industry. Given a process design and an appropriate selection of thermodynamic models, ASPEN uses mathematical models to predict the performance of the process. This information can then be used in an iterative fashion to optimize the design. This accurate modeling of thermodynamic properties is particularly important in the separation of non-ideal mixtures, and ASPEN has a large data bases of regressed parameters. ASPEN can handle very complex processes, including multiple-column separation systems, chemical reactors, distillation of chemically reactive compounds, and even electrolyte solutions like mineral acids and sodium hydroxide solutions. It can be learnt under this Training scheme by EDPTI.

Outcomes

The learning outcomes of the Training are as follows-

- **Aspen Adsorim** - Fixed bed adsorption for pressure swing adsorption, etc.
- **Aspen Chromatography** - Fixed bed adsorption, simulated moving bed chromatography. Runs independent of Aspen Plus.
- **Aspen Custom Modeler** - A utility to permit the creation of user unit operations.
- **Aspen Distil** - Aspen's 'Conceptual Engineering Product' for planning for processing schemes. Runs independent of Aspen Plus.
- **Aspen Dynamics** - Unsteady-state simulator.
- **Aspen Plus** - Steady-state process simulator.
- **Aspen Properties** - Modeling of properties and phase equilibria. Incorporated into most other components, though it can be run as a stand-alone subset. All of the phase equilibria and mixture property methods discussed on this site are accessible in either Aspen Plus or Aspen Properties.
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- **BatchSep** - Batch distillations. Runs independently of Aspen Plus.





Indore Institute of Science & Technology

Affiliated to - RGPV(Bhopal) & Approved by - AICTE(New Delhi)



Training

"Process Engineering Calculations on Aspen HYSYS & Aspen EDR"

Topics Covered:

Line Sizing | Pump Sizing

Hydraulic Calculations | Column and Reactor Sizing

HAZOP Study and FMEA | P&ID and PFD

Starting from: 29th May 2020 onwards
(40 Hrs internship)

Contact: +91 91653 59797 | 79875 78527
Email: ch@indoreinstitute.com



Faculty Coordinators



Mrs Samatha Singh
(HOD-Chem.)



Ms. Farhin Khan
(Asst. Professor)

Indore Institute of Science & Technology, Indore

IIST/Circular/ 2019-20

Dt. 26/05/2020


CIRCULAR

This is to inform you that Training on "**Process Engineering Calculations on Aspen Hysys & Aspen EDR**" will be organized from 29th May 2020 onwards at 10:30 am. Faculty members and students are requested to register and participate in it. For Further Information: Please contact coordinators for confirmation for your presence.

Faculty Coordinator

- a) Mrs. Samatha Singh, HOD, CM department

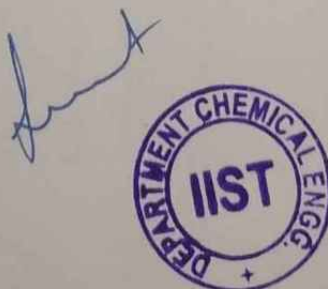
So, I invite all the interested students and faculty members to attend the Training to get all advantages.



PRINCIPAL

Copy To:

1. All students
2. All faculty and Staff
3. Dean/HOD
4. Registrar office
5. DG office
6. Office Record



Department of Chemical Engineering

Indore Institute of Science & Technology, Indore

Event Summary

Department of Chemical Engineering of IIST Indore has successfully organized the online training on "Process Engineering Calculation of Aspen Hysys & Aspen EDR" Under IICHE from 29th May 2020 in association with Engineering Design and Power Training Institute, Delhi. It is the most reputed brand partner of Reliance education for certification. In this Training, We have started with the introduction of the expert Dr. Samatha Singh, Event Coordinator. In the training, students had worked on live projects that can help in downsizing iterative fashion to optimize the design. This accurate modeling of thermodynamic properties is particularly important in the separation of non-ideal mixtures, and ASPEN has a large data bases of regressed parameters. ASPEN can handle very complex processes, including multiple-column separation systems, chemical reactors, distillation of chemically reactive compounds, and even electrolyte solutions like mineral acids and sodium hydroxide solutions. For instance, a user should have some idea of the column behavior before attempting to use ASPEN. This information could come from an approximate method, such as the McCabe-Thiele approach, general modeling of the T-x-y behavior, or residue curve maps were prepared through applications. The vote of thanks given by Ms. Farhin Khan.

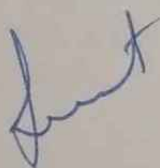
Dr. Samatha Singh

Head



SUMMARY

Department of chemical engineering has successfully organised online Internship on "Process Engineering Calculations of Aspen HYSYS & Aspen EDR" under IICHE conducted from 29th May in association with Engineering Design and Power Training Institute, Delhi. It is the most reputed brand partner of Reliance education for certification. The internship started with the welcome of the expert by Dr. Samatha Singh, Event Coordinator. In the internship students had worked on live industrial projects and had learnt about the process engineering calculations like line sizing, pressure drop calculation, heat duty calculation, pump hydraulics, HAZOP studies, P&ID and PFD preparation through technical software applications like Aspen Plus, Aspen HYSYS, Aspen HTRI. The vote of thanks was given by Ms. Farhin khan.



EXPERT PROFILE

EDUCATION	DURATION OF COURSE	SPECIALIZATION	UNIVERSITY/SCHOOL	INSTITUTE NAME	CPI
PGDMIB	1	International Business	Indian Institute of Foreign Trade	I.I.F.T	A
CERTIFICATE COURSE	6 MONTHS	PROCESS DESIGNING & SIMULATION	ISO-9001	EDPTI,DELHI	A
B-TECH	4 YEARS	CHEMICAL ENGINEERING			80
12		NON MEDICAL	ISC	ST JOSEPH BOYS SCHOOL, JALLANDHAR	81
10			ICSE	ST JOSEPH BOYS SCHOOL, JALLANDHAR	78

KEY SKILLS AND KNOWLEDGE AREA

1. Cost Saving Projects in areas (Utility, Process ,ETP)
2. Process Engineering ,Plant design (Equipment designing, Hydraulic Calculations)
3. Project Management. (Coordination with sites and cross functional team for execution of projects).
4. Use of Six sigma Techniques for execution of Projects at site.
5. Power saving, Effluent saving, Steam Saving Projects at site.
6. Waste water treatment Plant Design , Troubleshooting
7. Distillation Column, Exchanger Designing.

INDUSTRIAL EXPERIENCE

- **Bachelor in Chemical Engineering** with **10 years** of experience in:
- Process Engineering
- Greenfield & Brownfield Projects
- Designing of process Equipment's (Distillation Column, Exchanger)
- Simulation using Aspen Hyses, Chemcad , HTRI,
- New process development, drawing preparations, calculations regarding new processes
- Equipment sizing, Utility calculations.
- Data sheet preparation.
- Line sizing calculation.
- Pump Sizing calculation.
- Pressure drop calculations, Hydraulic calculations
- Heat integration projects using pinch technology
- HAZOP study, risk assessment.
- Looking after the ETP operations, Utility Operations, Plant Operation, solvent Recovery
- Process Improvement & Cost Reduction Projects in ETP, Utility
- Lean Six Sigma Implementation
- Training & Development



Major Green Field Projects:-

1. Design and commissioned 3 Bromo Pyridine Plant
2. Commissioned Sulphuric acid plant.
3. Designed and commissioned ETP in
4. Control Valve sizing, Piping design, reactor design for Advance surfactants.
5. Detailed Engineering ,P&ID preparation, PFD preparation for clients like Advance surfactants
6. Vessel separators simulation, MEE designing, Heat Exchanger designed using Aspen Hyses, HTRI.

Utility, RM Norm improvement projects:-

1. Reduction in Effluent Processing cost at Ambernath site by Rs. 200 /kl is achieved.
2. Improvement in RM norms projects Savings worth Rs. 125 Lacs is achieved

- Worked on 10 Cost saving projects
- Skilled in including design calculations, ETP operations, solvent recovery operations, cost management, vendor management, quality management and various other cross-functional activities
- Proficient in **assessing businesses to identify improvement opportunities and developing cost reduction programs** such as Lean and Six Sigma to address these opportunities
- Rich experience in **business analysis** with insightful knowledge of **analysis, design, development, testing, training and quality assurance**
- A dynamic change agent skilled in repositioning organizations to achieve operational and manufacturing excellence.

Designation: Process & Project Engineer (Nov-2015 to March-2018)

Responsibility:

1. Mass & heat balance of distillation columns, Evaporators, Responsible for assigned project from basic engineering to procurement, erection and commissioning.
2. Control philosophy preparation, DCS installation and commissioning, interlocks.
3. Utility calculations for new products.
4. Designing of process Equipment's (Distillation Column, Exchanger, Scrubber)
5. Simulation using Aspen Hyses, Chemcad , HTRI,
6. New process development, drawing preparations, calculations regarding new processes
7. Equipment sizing, Utility calculations.
8. Data sheet preparation.
9. Line sizing calculation.
10. Pump Sizing calculation.
11. Pressure drop calculations, Hydraulic calculations
12. Heat integration projects using pinch technology
13. HAZOP study, risk assessment.
14. Looking after the ETP operations, Utility Operations, Plant Operation.

Completed Projects :-

1. Working on steam reduction project at site by 5%, as a green belt under lean six sigma.
2. TDS reduction of site by 1000 kg/day.
3. Increased the recovery of reverse osmosis plant which results in saving of Rs. 50 lacs.
4. Reduction in ETP operation cost by 10%.



5. Diffusion Membrane system replacement with Aspirator system (Cost saving Project saving of worth Rs. 35 lacs.
6. Opex calculations of existing equipment's.
7. New technology evaluation and it's feasibility study
8. Heat integration projects which results in saving of Rs.16(LPA)
9. Effluent Reduction of site by 50 kl/day.

Designation: Process design & Project Engineer

Responsibility:

1. Erection and commissioning of sulphuric acid plant units (utility, gas section).
2. Worked on converter calculations.
3. Line Sizing calculations
4. Pressure drop calculations of lines (hydraulic calculations).
5. Pumps commissioning.
6. Package Boiler Commissioning
7. Final inspection of lines, equipment's, instruments.
8. Flushing activities
9. Leakage test of pipelines, vessels, equipment's.
10. Commissioning activities.
11. Control valves commissioning
12. Pumps designing (NPSH, head of pump, Flow rate of pump)
13. Commissioning of sulphuric acid plant
14. Mass balance calculations of plant.
15. Hands on experience on Forbes marshal dcs.
16. Good knowledge about the interlocks of the plant.
17. Pumps calculations (M.H.P, B.H.P., W.H.P., HEAD)
18. Vertical Phase separator vessels designing.
19. Material inspection.
20. Handling project activities of 5 plants of advance group.
21. Designing and procurement engineer for 5 sites of advance group.
22. Loading of catalyst in the converter beds
23. HAC OF PLANT
24. Installation of fire system in plant.
25. Hazop study of plant
26. First aid user and trainer in plant.

Designation: GET

Responsibility:

1. Main objective of the training program was to acquaint with different operations involved in plant.
2. Handling Shift responsibilities.
3. Handled a team of 20 production executives.
4. Optimization of the equipment's installed in plant.
5. Implementation of QMS on the shop floor.
6. Improving the product quality and quantity by simulating the process conditions.
7. Part of the project team of plant
8. Implementation of Inventory management system in plant
9. Assist the plant manager with the development of operative strategies
10. Monitoring and controlling of processes parameters and preparing process flow diagrams.



11. Optimization of fired heater by reducing its air amount input into the heater and by this way saving fuel for our company.
12. Monitoring the efficiency of equipment's installed (fired heater, pumps).
13. Working on the line & valve sizing calculations and line hydraulics calculations for process stream lines and utility lines.
14. Trained 15 operators
15. One among the ten member monitoring committee appointed for conducting the maintenance activities during plant's annual turnaround.
16. Increased the effectiveness of the equipment's handled in the production plant.
17. Hazop study of the plant

Hindustan Mittal Energy Limited Refinery, Bhatinda-:

Attended 6 months industrial training program in Hindustan Mittal Energy Limited, Bhatinda and submitted a report on optimization of fired heater installed in the crude distillation unit in Refinery.

Major and minor Projects undertaken in HMEL refinery training period:

MAJOR PROJECT:

Worked on a project of **optimization of fired heater in HMEL REFINERY** and also of increasing the efficiency of fired heater **from 67% to 75%**.

MINOR PROJECT:

- Worked on pressure drop and line sizing calculations of Mundra to Bhatinda pipeline supplying crude oil to Bhatinda in HMEL REFINERY.
- Have knowledge about the process lines pre- testing or prestart up procedure (steam test, air test).
- Have knowledge about the hydrotesting procedure of exchangers.

Equipments Handled & Designed

- Heat Exchangers
- Pumps
- Distillation columns.
- Scrubber

DESIGNING AND SIMULATION CERTIFICATION FROM EDPTI

I had done a 6 month certificate course of **Process Designing & Simulation** from EDPTI, DELHI where I had worked on the following projects:

- Designing of vertical 2 phase separators.
- Simulation of distillation column by using Aspen Hyses
- Pressure drop calculations for refinery.
- Preparation of Process flow diagram.
- Centrifugal pumps power calculations (bhp, mhp, whp).
- Line hydraulic calculations.
- Line & Valve sizing calculations.
- Designed a binary distillation column



CHEMICAL ENGINEERING EXPERTISE

- **Simulation Packages :** ASPEN PLUS, HTRI.
- **Key Courses:** Process plant Simulation, Mass transfer, Heat transfer, Fluid flow etc.



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Internship

**"Process Engineering Calculations on
Aspen HYSYS & Aspen EDR"**

Topics Covered:

Line Sizing | Pump Sizing

Hydraulic Calculations | Column and Reactor Sizing

HAZOP Study and FMEA | P&ID and PFD

Starting from: 29th May 2020 onwards
(40 Hrs internship)

Contact: +91 91653 59797 | 79875 78527
Email: ch@indoreinstitute.com



Faculty Coordinators



Mrs Samatha Singh
(HOD-Chem.)



Ms. Farhin Khan
(Asst. Professor)



Engineering Design and Power Training Institute

Office: D-68, 2nd Floor, Shakarpur, Near Laxmi Nagar Metro Station,
Mother Dairy Road, New Delhi-110092, Tel: 011-43013044
Email: info@edpti.com, Web: www.edpti.com
Corporate Office: SCO-94/95, Sector-34A, Chandigarh



Ref No: SE/CH/009

Date: 21-4-2020

To

The Director
Training & Placement Officer,
Indore Institute of Science and Technology, INDORE, INDIA

Subject: Confirmation (NOC) for 1 Month Industrial Training.

Dear Sir/Madam,

I would like to take this opportunity to introduce ourselves - EDPTI is a most reputed brand in India for imparting skills to engineers, we are brand partner of Reliance Education for Certification Reliance Education Ranked 4th among Top 10 Animation Institutes in India (Education World Magazine May 2014). We are ISO 9001 certified company and first time introducing new technologies in north India as like Thermal Power Plant, Piping Plant Design, HVAC Design engineering etc.

We confirm training of MR OMESHWAR BHONGADE University Roll No 0818CM161003, 8 sem in our organization and as per rule we provide the No Objection Certificate for 1 Month Industrial Training. His training will be starting from MAY 2020.

Our endeavor will be to impart & enhance knowledge of the student.

Thanks & Regards



Engineering Design and Power Training Institute

Office: U-68, 2nd Floor, Shakarpur, Near Laxmi Nagar Metro Station,
Mother Dairy Road, New Delhi-110092. Tel: 011-43013044
Email: info@edpti.com Web: www.edpti.com
Corporate Office: SCO 94-95, Sector-34A, Chandigarh



Ref No: SL/CH/003

Date -21-05-2020

To

The Director
Training & Placement Officer,
Indore Institute of Science and Technology, INDORE, INDIA

Subject: Confirmation (NOC) for 1 Month Industrial Training

Dear Sir/Madam,

I would like to take this opportunity to introduce ourselves – EDPTI is a most reputed brand in India for imparting skills to engineers, we are brand partner of Reliance Education for Certification. Reliance Education Ranked 4th among Top 10 Animation Institutes in India (Education World Magazine May 2014). We are ISO 9001 certified company and first time introducing new technologies in north India as like Thermal Power Plant, Piping Plant Design, HVAC Design engineering etc.

We confirm training of Mr. Vinayak Kaushal University Roll No 0818CM181014, 4 sem in our organization and as per rule we provide the No Objection Certificate for 1 Month Industrial Training. His training will be starting from MAY 2020.

Our endeavor will be to impart & enhance knowledge of the student.

Thanks & Regards



Branch Manager

Engineering Design and Power Training Institute

Office: U-68, 2nd Floor, Shakarpur, Near Laxmi Nagar Metro Station,
Mother Dairy Road, New Delhi-110092. Tel: 011-43013044
Email: info@edpti.com, Web: www.edpti.com
Corporate Office: SCD- 94-95, Sector-34A, Chandigarh



Ref No: SE/CH/001

Date: 21-05-2020

To

The Director

Training & Placement Officer

Indore Institute of Science and Technology, INDORE, INDIA

Subject: Confirmation (NOC) for 1 Month Industrial Training.

Dear Sir/Madam,

I would like to take this opportunity to introduce ourselves - EDPTI - is a most reputed brand in India for imparting skills to engineers, we are brand partner of Reliance Education for Certification Reliance Education Ranked 4th among Top 10 Animation Institutes in India (Education World Magazine May 2014). We are ISO 9001 certified company and first time introducing new technologies in north India as like Thermal Power Plant, Piping Plant Design, HVAC Design engineering etc.

We confirm training of Mr. Aniket Patrikar University Roll No. 0818CM171001, 6 sent in our organization and as per rule we provide the No Objection Certificate for 1 Month Industrial Training. His training will be starting from MAY 2020.

Our endeavor will be to impart & enhance knowledge of the student.

Thanks & Regards

Branch Manager



Engineering Design and Power Training Institute

Office: U-68, 2nd Floor, Shakarpur, Near Laxmi Nagar Metro Station,
Mother Dairy Road, New Delhi-110092. Tel: 011-43013044
Email: info@edpti.com Web: www.edpti.com
Corporate Office: SCO 94-95 Sector-34A Chandigarh



Ref No: SE/CH/002

Date -21-05-2020

To

The Director
Training & Placement Officer,
Indore Institute of Science and Technology, INDORE, INDIA

Subject: Confirmation (NOC) for 1 Month Industrial Training.

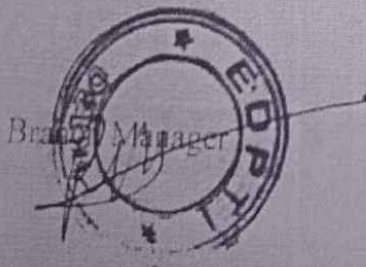
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We confirm training of Mr. Bisal Samanta University Roll No 0818CM181004, 4 sem in our organization and as per rule we provide the No Objection Certificate for 1 Month Industrial Training. His training will be starting from MAY 2020.

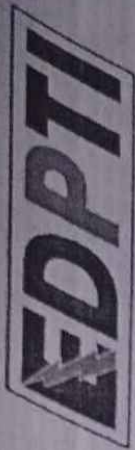
Our endeavor will be to impart & enhance knowledge of the student.

Thanks & Regards



SKILLED ENGINEERS™

Member Confederation of Indian Industry



AN ISO 9001 : 2008 ORGANIZATION

CERTIFICATE OF COMPLETION



This Certificate Is Presented to

Omeshwar Bhongade

for successfully completing of 4 weeks training in Basic Process Design

Certificate No. Ch/D/PD/2020/1015

Date: 05/07/2020



Training Incharge

Assessment Manager



CERTIFICATE OF COMPLETION

This Certificate Is Presented to

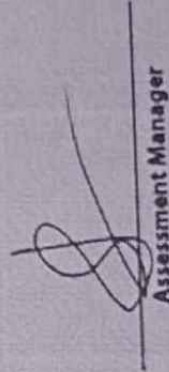
Mayuri Tembe

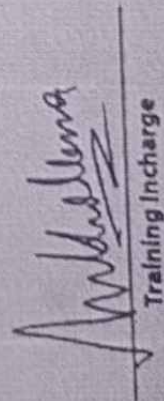
for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1020




Assessment Manager


Training Incharge

CERTIFICATE OF COMPLETION



This Certificate Is Presented to

Vinayak Kaushal

for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1011



Assessment Manager

Training Incharge

CERTIFICATE OF COMPLETION



This Certificate Is Presented to

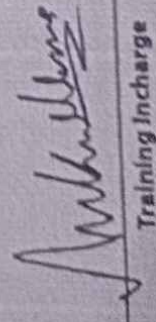
Rajkumar Dhakad

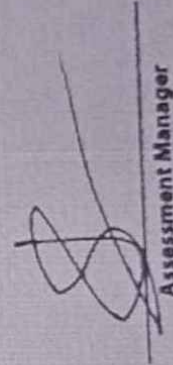
for successfully completing of 4 weeks training in Basic Process Design

Certificate No. Ch/D/PD/2020/1010

Date: 05/07/2020




Training Incharge


Assessment Manager

CERTIFICATE OF COMPLETION



This Certificate Is Presented to
Pritam Kumar

for successfully completing of 4 weeks training in Basic Process Design

Date: 05/07/2020

Certificate No. Ch/D/PD/2020/1012



Assessment Manager

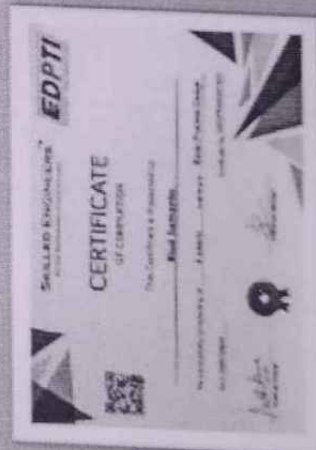
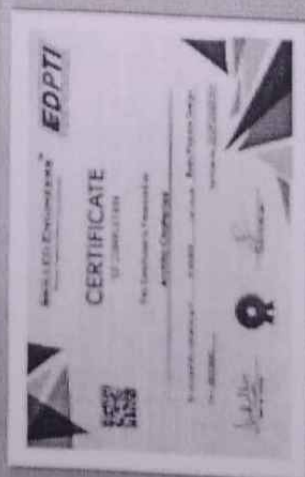
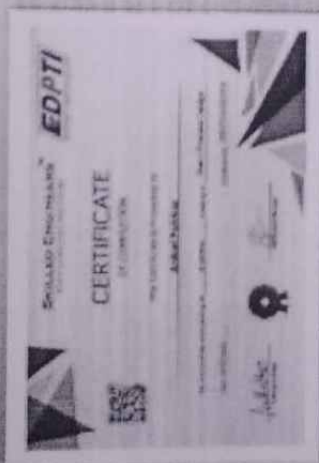
Training Incharge

**Online Internship on Process Engineering Calculations of Aspen HYSYS & Aspen EDR
in association with EDPTI, Delhi**

Department of chemical engineering is happy to announce that our students have successfully completed one month Online Internship on "Process Engineering Calculations of Aspen HYSYS & Aspen EDR" conducted from 21st May to 21st June 2020 in association with Engineering Design and Power Training Institute, Delhi. It is the most reputed brand partner of Reliance education for certification. In the internship students had worked on live industrial projects and had learnt about the process engineering calculations like line sizing, pressure drop calculation, heat duty calculation, pump hydraulics, HAZOP studies, P&ID and PFD preparation through technical software applications like Aspen Plus, Aspen HYSYS, Aspen HTRI.

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drop calculation, heat duty calculation, HAZOP studies, P&ID and PFD preparation □□ □□□□
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IIST is proud to extend it's Heartiest
CONGRATULATIONS!!

To our Chemical Engineering Students for successful completion of
Online Internship
in association with
Engineering Design & Power Training Institute, Delhi
on

**“Process Engineering Calculation on
Aspen HYSYS & Aspen EDR”**





FEEDBACK of Internship									
Name	Institute Name	Email	How satisfied were you with the internship?	How relevant and helpful do you think it was for your career?	How satisfied were you with the session content?	How satisfied were you with the instructor?	What do you have learnt in this Internship?	Do you want such type of internship in future?	Write your review about this internship.
Omshwar Bisal samnata	IIST Indore Indore institute of science and technology	omshwar.omb@gmail.com bisalsamanta81@gmail.com	4 4	5 4	4 4	5 4	The brief information regarding process engineering Line sizing	Yes Yes	knowledge. The faculty member is very cooperative. us in view of industrial need and operations.
Archita Chatterjee	Indore Institute Of Science and Technology	architachatterjee1@gmail.com	5	5	5	5	Basic and Important topics of chemical Engineering which are useful in every industry. Practical application and problems of book knowledge of line sizing, pumps, distillation column using Aspen HYSYS, Excel and HTRI	Yes	session and the instructor is amazing in what he was told to explain, for me personally session was very fruitful in clearing my doubts and course is good and by this internship I got to know about practical aspects of designing equipment and the process of designing equipments. However, the knowledgeable. Instructor explains all the concept in excellent manner.
Aniket Patrikar	IIST	aniketpatrikar123@gmail.com	4	5	4	5	Line sizing Aspen HAZOP	Yes	
Mayuri Tembe	Laxminarayan institute of technology	mayuri.tembe@indoreinstitute.com	5	5	5	5	exchanger, different reactors, distillation, costing and relevant industrial information.	Yes	
Pragya	Indore institute of science and technology	Pragya.baloithiya@gmail.com	4	4	4	5	About industrial problem, how to solve with the help of software	Yes	Helpful
Rajkumar Dhakad	Iist	9826raj75@gmail.com	5	5	5	5	Aspen , Excel, HTRI, line sizing, pump	Yes	it's helpful for our interview and it's a great season for us to increase our knowledge
pritam kumar	Indore institute of science and technology Indore	Pritam.kumarchem2017@indoreinstitute.com	5	5	5	5	Basics of process engineering and got handy with Aspen hysys software	Yes	Practical knowledge of subject that we study in class for me. And I think it will really helpful for me in future.
Shivani Sakhare	Mgm's Jawaharlal Nehru Engineering college	shivanisakhare00@gmail.com	4	4	4	4	How to operate aspen and gain some knowledge about interview also.	Yes	and i am such a unlucky person that i am not attend some lectures due to my health issues but whatever i learned it was such a
VINAYAK KAUSHAL	Indore Institute of Science and Technology	vinayakkaushal747@gmail.com	5	5	5	5	Everything related to designing in the world of chemical engineering	Yes	
Suraj Bhatt	Indore Institute of Science & Technology	srjsrk200@gmail.com	5	5	5	5		Yes	Excellent

Kamesh Patidar	IPCA Laboratories LTD, Ratlam	kameshpatidar22@gmail.co m	5	5	5	5	5	aspen hysys	Yes	good, Sir clear every topic and every point very well.
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[illegible]

21:31

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Internship on ProcessE...

list, list, IIST, IIST, IIST, IIST, Pankaj...



Welcome dear students 😊 19:36 ✓✓

Find course content of the internship
on Process Engineering 19:37 ✓✓

➡ Forwarded

COURSE CONTENT:- BASIC PROCESS
ENGINEERING

THERMODYNAMICS :-

Role of Thermodynamic Components (Temperature, Enthalpy, Latent Heat, Specific
Heat, Activity coefficients) in design of Equipment's (Distillation Columns, Pumps,
Absorbers, Reactors).

Software like Aspen Hysys, Aspen + Modelling and Simulation of equipment.



Process Course-1 (3).pdf

3 pages • PDF

19:38 ✓✓

➡ Forwarded

Piping Design Course, Piping Design
Training Institute in delhi, Piping Design
Engineering Electrical Design Course
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<http://edpti.com/Default.aspx> 19:38 ✓✓

You

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You can also visit their websi... ⌵

19:39 ✓✓



Type a message



