

Shri S'ad Vidya Mandal Institute of Technology

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SSIP & IP CELL

Activity Report

Academic Year 2026-27

An expert session on Data Analysis and RSM for Chemical Engineering Optimisation

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Date: 19.08.2026

Moderator: Dr. Pritam Patil

Coordinators: Prof. Palak Trivedi

Prof. Aesha Mehta

1. Basic Details

Activity Name	An expert session on Data Analysis & RSM for Chemical Engineering Optimisation
Theme / Thrust Area	Awareness about Statistical Analysis of Experimental Data
Mode (Online / Offline / Hybrid)	Online
Date / Time	19.08.2026, 2:30 pm onwards
Venue / Platform	Online (Google Meet)
Organising Department / Committee	Chemical Engineering Department/ SSIP
Number of Participants (Students / Faculty / External)	Students: 47 Faculty: 3
Expenditure (if any)	Nil

2. Objectives

The key objectives of the session were:

1. To introduce students to the fundamentals of data analysis and its importance in solving chemical engineering problems.
2. To familiarize students with Response Surface Methodology (RSM) as a systematic tool for experimental design, process modelling, and optimization.
3. To demonstrate the application of statistical and data-driven techniques for analysing experimental data and identifying significant process parameters.
4. To develop students' understanding of process optimization by studying the effects and interactions of multiple operating variables on chemical engineering responses.
5. To provide practical insights into software-based data analysis and RSM, including tools such as Minitab and other computational platforms used in chemical engineering.
6. To encourage data-driven decision-making and problem-solving skills applicable to research, industrial processes, and process development.

2. Summary / Description of the Activity

The expert talk on “**Data Analysis and RSM for Chemical Engineers**” provided students with an understanding of the importance of data-driven approaches in Chemical Engineering. The session introduced the fundamentals of **data analysis, experimental design, Response Surface Methodology (RSM), process modelling, and optimization**. Students gained insights into analysing experimental data, identifying significant process variables and their interactions, and optimizing chemical engineering processes using statistical and computational tools. The session also connected these techniques with practical applications in **research, process development, and industrial problem-solving**. The topic closely aligns with Dr. Patil's teaching and technical expertise in data analytics, process design and optimization, experimental design, and data interpretation.

4. Key Outcomes / Learnings

By the end of the session, participants were able to:

1. **Understanding of Data Analysis:** Students gained an understanding of the role and importance of data analysis in Chemical Engineering research and industrial applications.
2. **Knowledge of RSM:** Students developed a basic understanding of Response Surface Methodology (RSM) and its application in experimental design and process optimization.
3. **Identification of Significant Variables:** Students learned how statistical analysis can be used to identify significant process parameters and study their individual and interactive effects.
4. **Process Optimization Skills:** Students gained insights into using data-driven approaches to determine optimum operating conditions for chemical engineering processes.
5. **Practical Application of Software Tools:** Students were introduced to the use of computational/statistical tools for data analysis, experimental design, modelling, and interpretation—areas included in the expert's technical expertise.
6. **Research-Oriented Problem Solving:** The session enhanced students' ability to approach chemical engineering problems systematically using experimental data, statistical methods, and optimization techniques.
7. **Industry-Relevant Learning:** Students gained awareness of how data analytics, modelling, and optimization can support process development, research, and industrial decision-making, complementing the expert's experience in process modelling, optimization, and data analytics..

5. Benefit / Impact

Enhanced Data-Driven Thinking: The session helped students understand how experimental and process data can be systematically analysed to support engineering decisions.

Improved Problem-Solving Skills: Students gained a structured approach to solving complex Chemical Engineering problems using statistical analysis, modelling, and optimization.

Better Understanding of Process Optimization: Students learned how RSM can be used to study the effects of multiple variables and identify suitable operating conditions.

Strengthened Research Skills: The session provided students with useful knowledge for designing experiments, analysing results, and interpreting data in academic and research projects.

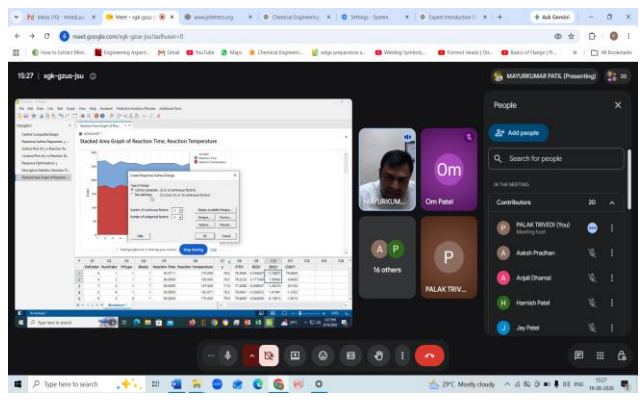
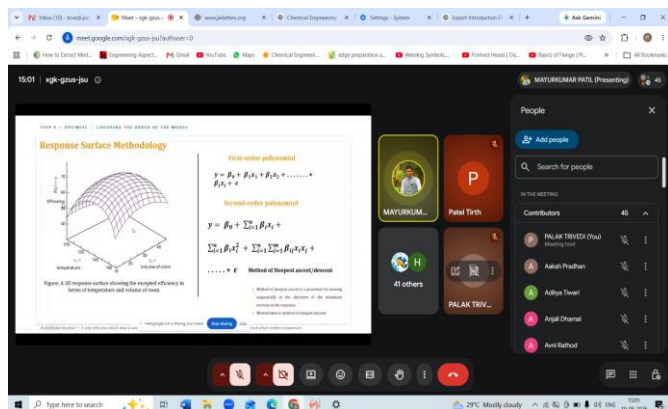
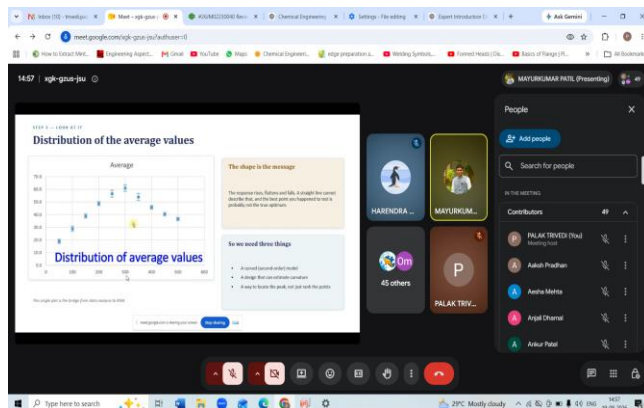
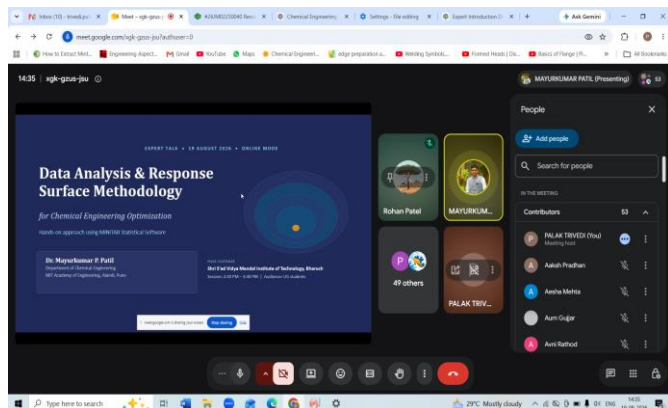
Industry-Relevant Skill Development: Exposure to data analytics, modelling, and optimization helps students develop skills relevant to modern Chemical Engineering practices and process industries.

Improved Use of Analytical Tools: Students gained awareness of computational and statistical tools used for data analysis and experimental design.

6. Challenges / Issues (if any)

Challenge 1: None

7. Photos / Images





Shri S'ad Vidya Mandal Institute
of Technology



Intellectual Property IP Cell (SVMIT, Bharuch)

Expert Talk on

"Data Analysis and RSM for Chemical Engineering
Optimization"



Dr. Mayurkumar Patil

Assistant Professor,
Chemical Engineering Department,
MIT Academy of Engineering, Alandi,
Pune.

Moderator: Dr. Pritam Patil

Faculty Coordinator

Prof. Palak Trivedi
Prof. Aesha Mehta

19th August, 2026 (Wednesday)

**02:30 PM to 03:30 PM
(Online Mode)**

Link: <https://meet.google.com/xgk-gzus-jsu>

Annexure/ Attendance:

Sl. No.	Roll No.	Year	Name of the Student	Signature
1	250453105001	3 rd	ADITHYAN V. V. A.	
2	250453105002	3 rd	Adarsh Rajagopal H.	
3	250453105003	3 rd	Akshay Shubham M.	
4	250453105004	3 rd	Vedant Pratik B.	
5	250453105005	3 rd	Arjun A. A.	
6	250453105006	3 rd	Arjun A. A.	
7	250453105007	3 rd	Arjun A. A.	
8	250453105008	3 rd	Arjun A. A.	
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