B.M.S. COLLEGE OF ENGINEERING, BENGALURU

Autonomous Institute, Affiliated to VTU

Department of Chemical Engineering

1. Name of the Department: Chemical Engineering

2. Name of the Activity: Rotating Machinery Bootcamp – Foundation Rotating Machinery, Compressors and Pumps (With Digital Enablement and IIoT Focus)

3. Objectives: The three-day Rotating Machinery Bootcamp was organized to provide students with a fundamental understanding of rotating machinery and its applications in industries. The objectives of the bootcamp were:

- To understand the fundamental concepts, types and working principles of rotating machinery.
- To introduce the basic principles and applications of compressors and pumps.
- To understand compressor and pump performance parameters, computations, selection and sizing.
- To familiarize students with 3D interactive visualization of industrial equipment.
- To provide exposure to Virtual Reality (VR) based learning for equipment operation and start-up procedures.
- To develop an understanding of equipment monitoring, troubleshooting and performance optimization.

4. Date, Time and Venue of the Activity:

Date: 21st – 23rd September 2026

Time:

Day 1: 09:00 AM – 05:30 PM
Day 2: 09:00 AM – 06:30 PM
Day 3: 09:00 AM – 06:00 PM

Venue:

Department of Chemical Engineering,
B.M.S. College of Engineering, Bengaluru – 560019

Conducted jointly by:

Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru and ModeliCon InfoTech LLP, Bengaluru.

Under the Samridhi DHI Skill-building Initiative of the Ministry of Heavy Industries, under the mentorship of Indian Institute of Science (IISc), Bengaluru.

5. Brief Summary of the Program

The Rotating Machinery Bootcamp – Foundation Rotating Machinery, Compressors and Pumps was a three-day technical skill-building program conducted from 21st to 23rd September 2026 at the Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru. The program was conducted jointly by B.M.S. College of Engineering and ModeliCon InfoTech LLP, as part of the Samridhi DHI Skill-building Initiative of the Ministry of Heavy Industries, under the mentorship of the Indian Institute of Science (IISc), Bengaluru. The bootcamp focused on developing a strong foundation in rotating machinery and providing students with exposure to modern digital methods of learning, including 3D interactive models and Virtual Reality (VR).

Day 1 – Foundation of Rotating Machinery

The first day, conducted from 9:00 AM to 5:30 PM, focused on the fundamentals of rotating machinery. The program began with the inauguration, followed by sessions covering the foundation of rotating machinery concepts, including theoretical concepts and computations. A 3D interactive visualization session was conducted to provide a better understanding of rotating machinery systems. The day also included a Virtual Reality (VR) demonstration, followed by closing remarks and a preview of the second day.

Time	Activity
09:00 – 09:15	Inauguration
09:15 – 10:45	Foundation to Rotating Machinery Concepts – Part 1
10:45 – 11:00	3D Interactive Visualization of Foundation to Rotating Machinery
11:00 – 11:15	Tea Break
11:15 – 13:15	Foundation to Rotating Machinery Concepts – Part 2
13:15 – 14:00	Lunch Break
14:00 – 15:30	Foundation to Rotating Machinery Concepts – Part 3
15:30 – 16:00	Foundation to Rotating Machinery Computations

16:00 – 16:15	Tea Break
16:15 – 17:15	VR Demo
17:15 – 17:30	Closing Remarks and Preview of Day 2

Day 2 – Compressors

The second day, conducted from 9:00 AM to 6:30 PM, was dedicated to compressors. The sessions covered fundamental compressor concepts, compressor computations and performance-related aspects. Participants were introduced to 3D interactive visualization of compressors to enhance their understanding of compressor systems. The program also included Compressor VR sessions covering basic concepts and start-up procedures. An assessment was conducted towards the end of the day, followed by closing remarks.

Time	Activity
09:00 – 09:15	Recap of Day 1
09:15 – 10:30	Compressor Concepts – Part 1
10:30 – 11:00	3D Interactive Visualization of Compressors
11:00 – 11:15	Tea Break
11:15 – 12:45	Compressor Concepts – Part 2
12:45 – 13:15	Compressor Computations – Part 1
13:15 – 14:00	Lunch Break
14:00 – 15:30	Compressor Concepts – Part 3
15:30 – 16:00	Compressor Computations – Part 2
16:00 – 16:15	Tea Break
16:15 – 17:15	Compressor VR Session: Basics
17:15 – 17:45	Compressor VR Session: Start-up
17:45 – 18:15	Assessment
18:15 – 18:30	Closing Remarks

Day 3 – Pumps

The third day, conducted from 9:00 AM to 6:00 PM, focused on pumps and pump systems. The sessions covered pump concepts, pump computations and basic principles of pump operation. A 3D interactive visualization of pumps was conducted, followed by sessions on pump basics using Virtual Reality. Participants were also introduced to pump start-up procedures through VR-based learning. The day concluded with an assessment and closing remarks.

Time	Activity
09:00 – 09:15	Recap of Day 2
09:15 – 10:30	Pump Concepts – Part 1

10:30 – 11:00	3D Interactive Visualization of Pumps
11:00 – 11:15	Tea Break
11:15 – 12:45	Pump Concepts – Part 2
12:45 – 13:15	Pump Computations
13:15 – 14:00	Lunch Break
14:00 – 15:30	Pump Concepts – Part 3
15:30 – 16:00	Pump Basics VR
16:00 – 16:15	Tea Break
16:15 – 16:45	Pump Start-up VR
16:45 – 17:45	Assessment
17:45 – 18:00	Closing Remarks

Overall, the three-day bootcamp provided participants with a combination of theoretical knowledge, engineering computations, interactive 3D visualization and VR-based learning, thereby improving their understanding of rotating machinery, compressors and pumps and their industrial applications.

6. Key Learning Outcomes

The Rotating Machinery Bootcamp provided participants with the following key learning outcomes:

- Gained an understanding of the fundamentals, types, mechanics and dynamics of rotating machinery.
- Understood the basic principles and industrial applications of compressors and pumps.
- Learned about compressor performance parameters, selection, sizing and control. and control.
- Understood the basic principles of gas compression and its applications in industry.
- Gained knowledge of different pump types, classifications, construction and applications.
- Learned to analyze pump performance based on flow rate, head, power consumption and efficiency.
- Understood the importance of operating equipment under appropriate design and operating conditions.
- Gained exposure to 3D interactive models for better visualization of industrial machinery.
- Experienced Virtual Reality (VR)-based learning for compressor and pump systems, including start-up procedures.
- Developed awareness of equipment monitoring, troubleshooting and performance optimization.

7. Organizing Team and Coordinators

The Rotating Machinery Bootcamp was conducted jointly by the Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru, and ModeliCon InfoTech LLP, Bengaluru.

The program was coordinated by:

Name	Designation	Department / Institution
Dr. Sree Lakshmi Diddi	Coordinator	Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru
Dr. Chetan A. Nayak	Professor & Head	Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru

8. Resource Persons / Industry Experts

The bootcamp included sessions by experienced industry professionals who brought practical and industrial perspectives to the program.

Name	Designation	Organization
Dr. Sunil Shah	Chief Executive Officer (CEO)	ModeliCon InfoTech LLP
Dr. Barun Chakrabarti	Managing Director & Executive Director	Bonitas Consulting & TSI
Mr. Shankar Balakrishnan	Industry Expert & Mentor	Autocon Technologies

9. Conclusion

The Rotating Machinery Bootcamp – Foundation Rotating Machinery, Compressors and Pumps successfully provided participants with an overview of important concepts related to rotating machinery and its industrial applications.

The three-day program combined theoretical sessions, engineering computations, 3D interactive visualization and Virtual Reality-based learning. The sessions on compressors and pumps provided participants with an understanding of their fundamental principles, performance and operation, while the VR sessions enabled them to visualize equipment and gain exposure to start-up procedures in an interactive environment.

The bootcamp also provided an opportunity for students to interact with industry experts and gain awareness of modern digital approaches being used for engineering education, equipment visualization and industrial applications.

Overall, the program contributed to enhancing the technical knowledge, practical understanding and industry-oriented skills of the participants and served as a valuable skill-building initiative for students of Chemical Engineering.

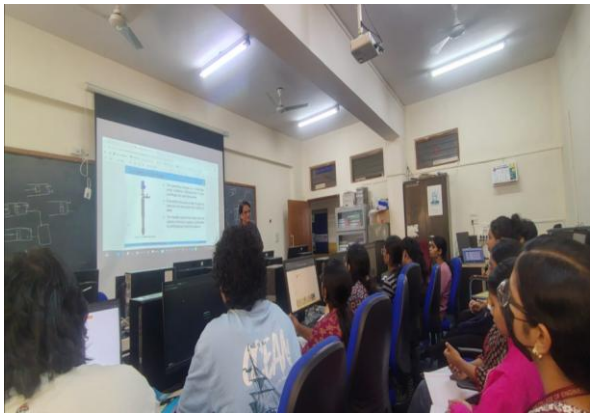
10.Photographs

Valedictory Program: Vice-Principal, BMSCE; HOD, Dept. of Chemical Engg., Faculty Coordinator – Dr. Sree Lakshmi D and Modelicon Personnel





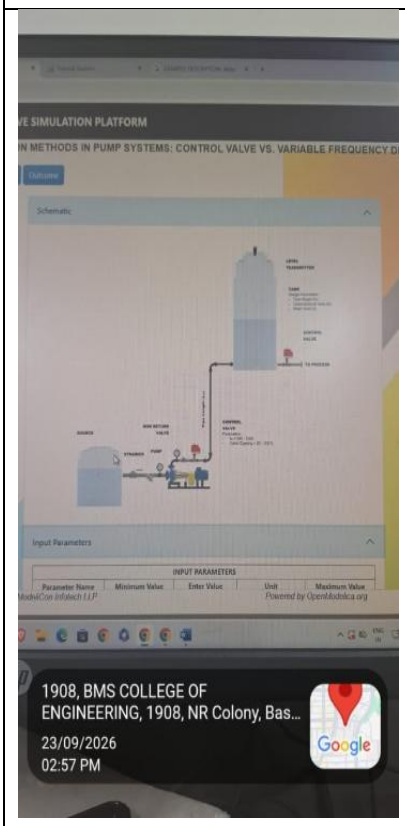
Dr Sunil Shah teaching Compressors



Mr. Shankar Balakrishnan teaching Pumps



Certificate Presentation by the Vice-Principal, BMSCE.



Pump systems



Student experiencing V.R.



Compressor Maps

11. Supporting Document

Program Brochure



Bootcamp Certificate


BMSCE/CH/IDC/2026-27/10

CERTIFICATE

OF PARTICIPATION

This certificate is awarded to:

[redacted]

for attending the in-person course on "Rotating Machinery Bootcamp: Foundation Rotating Machinery, Compressors and Pumps" Conducted Jointly by B.M.S College of Engineering and ModeliCon InfoTech LLP, Bengaluru during 21st - 23rd September 2026 at The Dept. of Chemical Engineering, B.M.S. College of Engineering, Bull Temple Road, Bengaluru- 560019

ModeliCon

Dr. Bheemsha Arya, Principal, B.M.S. College of Engineering

Dr. Chetan A Nayak, HoD, Dept. of Chemical Engineering

Dr. Sree Lakshmi Diddi, Co-ordinator, Dept. of Chemical Engineering

Dr. Sunil Shah, Co-founder and CEO, ModeliCon InfoTech LLP

12. Acknowledgement

The Department of Chemical Engineering, B.M.S. College of Engineering, Bengaluru, expresses its sincere gratitude to all those who contributed to the successful organization and execution of the Rotating Machinery Bootcamp – Foundation Rotating Machinery, Compressors and Pumps. The department gratefully acknowledges the support and guidance of the Management, B.M.S. College of Engineering, and the College Authorities for facilitating the program.

The department also extends its sincere appreciation to ModeliCon InfoTech LLP, Bengaluru, for conducting the technical sessions and providing participants with valuable exposure to rotating machinery, compressors, pumps, 3D interactive visualization and Virtual Reality-based learning. Special thanks are extended to the program coordinators and resource persons for their valuable contributions and guidance throughout the three-day bootcamp. The active participation and cooperation of all the students and participants are also acknowledged, which contributed to the successful completion of the program.