

A Seminar on Revolution of the construction industry through Artificial Intelligence (AI)

Dr. P A Shirule

Civil Engg

Activity Report

Academic Year	2024-25
Program Driven by	
Quarter	III
Program / Activity Name	Capacity Building Program
Program Type	
Program Theme	Innovation and startups
Start Date	29-03-2025
End Date	29-03-2025
Duration of the Activity (in Mins)	60
Number of Student Participant	0
Number of Faculty Participant	70
Number of external Participant	--
Expenditure Amount in Rs.	
Any Remark	--
Mode of Session Delivery	Offline
Objective	
Benefit in terms of Learning / Skills / Knowledge obtained	
Feedback	
Video url (mp4)	
Photograph 1 (jpg)	Attached
Photograph 2 (jpg)	Attached
Overall report of the Activity (pdf)	As given below





Dr. P. H. Zope Convener IIC

Title:

Revolution of the Construction Industry through Artificial Intelligence (AI)

Speaker:

Dr. P. A. Shirule

Date:

[29-03-25]

Venue:

[SSBT COET Bambhori]

1. Introduction

A highly informative seminar titled "**Revolution of the Construction Industry through Artificial Intelligence (AI)**" was conducted by **Dr. P. A. Shirule**, an expert in the field of AI applications in construction. The seminar explored how AI is transforming the construction industry by enhancing productivity, improving safety standards, and driving innovation in building design, project management, and construction processes. The session was attended by engineers, construction professionals, researchers, and students interested in understanding the impact of AI on the future of the construction sector.

2. Objectives of the Seminar

- To explore the role of Artificial Intelligence in revolutionizing the construction industry.
- To understand how AI technologies improve project planning, design, and execution.

- To discuss the integration of AI in automation, safety, and sustainability in construction.
 - To identify the challenges and future trends in AI adoption within the construction industry.
-

3. Key Highlights of the Seminar

a. Overview of AI in the Construction Industry

Dr. Shirule began by outlining the rapid advancements in AI and its growing influence across various industries. In the construction industry, AI is reshaping the way projects are designed, managed, and executed. From **predictive analytics** to **robotics** and **smart buildings**, AI has the potential to optimize every stage of the construction lifecycle.

b. Applications of AI in Construction

Dr. Shirule highlighted several key applications of AI in construction:

- **AI in Project Planning and Design:**
AI is transforming the design phase with tools like **Generative Design**, which uses algorithms to generate optimized building designs based on specific constraints (e.g., budget, space, materials). AI-powered **Building Information Modeling (BIM)** tools allow for better collaboration among architects, engineers, and contractors, improving design accuracy and efficiency.
- **AI in Construction Project Management:**
AI-driven software systems are being used to predict project timelines, estimate costs, and manage resources. **Machine learning algorithms** analyze historical project data to identify patterns, enabling construction managers to make more accurate forecasts regarding project delays, budget overruns, and resource allocation.
- **AI in Automation and Robotics:**
Robotics, powered by AI, is gaining prominence in construction, with autonomous robots performing tasks such as bricklaying, welding, and site surveying. AI also plays a key role in **drones** for surveying and mapping, collecting real-time data to monitor construction progress and detect potential issues.
- **AI in Safety Management:**
Safety is a major concern in construction, and AI is helping to reduce accidents and improve safety on job sites. AI technologies, including **computer vision**, can analyze live video feeds to detect safety hazards such as workers not wearing protective equipment or dangerous activities. AI systems can also predict potential safety risks based on historical accident data and recommend preventive actions.
- **AI in Predictive Maintenance:**
AI is used for **predictive maintenance** of construction equipment, ensuring that machines are serviced before they break down. By analyzing sensor data from construction machinery, AI can predict failures and recommend maintenance schedules, reducing downtime and repair costs.

- **AI in Sustainable Construction:**

AI is also playing a role in promoting sustainability in the construction sector. By optimizing material usage, energy consumption, and waste management, AI can help construction projects become more environmentally friendly. AI-driven **energy-efficient building systems** and **smart grids** are improving the energy efficiency of buildings, reducing both operational costs and carbon footprints.

c. Case Studies and Real-World Examples

Dr. Shirule presented several case studies that demonstrate the successful application of AI in construction:

- **Autonomous Construction Vehicles:** Several companies are now deploying AI-powered autonomous vehicles to perform tasks such as excavation and material transportation, significantly reducing the need for manual labor and increasing operational efficiency.
- **AI for Construction Monitoring:** AI is being used for real-time project monitoring, where AI tools analyze data from sensors and cameras on the construction site to track progress and detect issues such as structural flaws or delays.
- **AI in Smart Cities:** Dr. Shirule also discussed the role of AI in building smart cities, where AI integrates infrastructure management systems like traffic control, utilities, and waste management to create efficient and sustainable urban environments.

d. Challenges in Implementing AI in Construction

Despite the promising potential of AI, Dr. Shirule pointed out several challenges in adopting AI in the construction industry:

- **High Initial Costs:** AI implementation requires substantial investment in both technology and training. Small and medium-sized construction companies may face financial challenges in adopting AI solutions.
- **Data Availability and Quality:** AI systems require high-quality data for accurate predictions and analyses. The construction industry still struggles with data fragmentation, making it difficult to integrate AI systems effectively.
- **Skill Gaps:** There is a shortage of skilled professionals who understand both AI technologies and the construction industry. This gap hinders the adoption of AI solutions.
- **Resistance to Change:** Many construction companies are still hesitant to embrace AI due to a lack of understanding of its benefits or fear of job displacement.

e. The Future of AI in Construction

Looking ahead, Dr. Shirule emphasized that the construction industry will continue to experience significant disruption from AI technologies. The future will see the rise of **AI-powered smart construction sites**, fully automated construction processes, and buildings that are not only energy-efficient but also self-sustaining through AI-enabled systems. She

encouraged industry professionals to embrace these changes and start integrating AI tools into their operations to stay competitive.

4. Interactive Session

Following Dr. Shirule's presentation, an interactive Q&A session took place where participants engaged with the speaker on topics such as:


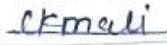

















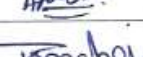
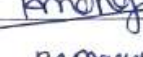
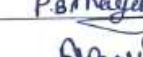

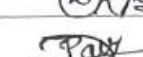

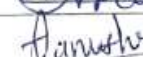
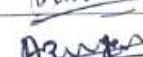
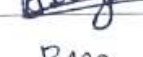


- The scalability of AI in small-scale construction projects.
- AI's role in reducing construction-related environmental impacts.
- How construction companies can start adopting AI technologies on a smaller scale before full integration.

Dr. Shirule provided practical advice on starting with AI pilot projects and emphasized the importance of collaborating with AI specialists to ensure effective implementation.

5. Conclusion

The seminar concluded with a summary of the key takeaways. Dr. P. A. Shirule reaffirmed that **AI is not just a tool but a catalyst** for revolutionizing the construction industry. Its ability to improve efficiency, safety, sustainability, and overall project outcomes makes it an indispensable technology for the future of construction. She urged the attendees to explore AI applications in their respective projects and start adapting to the evolving landscape of the construction industry.



Roll no.	Name	Sign
54	Kalyani Bapu pati	
17	Chaitali K. Mali	
60	Megha Manoj Patil	
45	Devayani Samadhan Patil	
74	Shruti Kiran Patil	
73	Shrushti Rakesh Patil	
80	Teena Hemraj Patil	
28	Nizgala Natendra Narkhede	
33	Vishakha Pramod Nikam	
46	Devyani Pravin Patil	
38	Ankita Sanjay Patil	
41	Rutuja Ravindra Patil	
32	Lavanya Santosh Nikam	
83	Pranjal Mukunda Patil	
02	Bhagyashree Anant Khewalkar	
79	Tanvi Vinesh Singh Patil	
70	Ranjana Dnyaneshwar Patil	
19	Prapti Shrawan Mali	
53	Jayshree G. Patil	
08	Bhumiika Dilip Mahajan	
10	Khushi Rajendra Mahajan	
06	Priyanka Bhagwan Magare	
39	Ankita Vilas Patil	
37	Keerti Kaduba Pordeshi	
36	Trupti Dyaneshwar Palve	
55	Khushi Vinayak Patil	
78	Tanushree Pandharinath Patil	
07	Aniket Balwant Mahajan	
05	Prajwal Vinod Machankar	
59	Mayur Surgh Patil	

Sr.No	Name of Student	Sign.	Roll No.
1)	Utkarsha. S. Patil	<u>Utkarsha</u>	2
2)	Tanvi Vinod kulkarni	<u>Kulkarni</u>	62
3)	Utkarsha S. Suryawanshi	<u>US</u>	38
4)	Gayatri Tushar Shingate	<u>Shingate</u>	26
5)	Simran Shawata Tadari	<u>Tadari</u>	41
6)	Mansi suresh shirade	<u>Shirade</u>	27
7)	Snigdha Ratilal Patil	<u>Patil</u>	71
8)	Sejal Dipak Sandhanshi	<u>Sandhanshi</u>	21
9)	Pradnya Vijay Nikam	<u>Pradnya</u>	67
10)	Saniya Javed Shaikh	<u>Saniya</u>	74
11)	Gauri Vijay Sonar	<u>Gauri</u>	75
12)	Chhayashree Pralhad Patil	<u>Patil</u>	69
13)	Vaibhavi Vinayak patil	<u>Vaibhavi</u>	3
14)	Troiveni Ashok Solanki	<u>Troiveni</u>	29
15)	Abhijeet. Girish. Patil	<u>Patil</u>	68
16)	Shreyas. Vijay. Sangore	<u>Shreyas</u>	72
17)	Varad Anil Akkavadi	<u>Varad</u>	55
18)	Aryan Kamal Bajaj	<u>Aryan</u>	53
19)	Reham Akiloddin Shaikh	<u>Reham</u>	73
20)	Ganesh P. Sushir	<u>G.P. Sushir</u>	40
21)	Yogeshwar Sopan Wagh	<u>Yogeshwar</u>	51
22)	OM Rajendra Talele	<u>Talele</u>	43
23)	chandheersant Devidas Ahire	<u>Ahire</u>	54
24)	Faizan Lukman Tadvi	<u>Faizan</u>	79
25)	Kalpesh Ananda Sonawane	<u>Kalpesh</u>	31
26)	Chiranjay Digambar Rajput	<u>Chiranjay</u>	16

Roll No	Name	Sign
23	Aditya Arun more	<u>Aditya</u>
65	Pratik Rajesh Patil	<u>Pratik</u>
66	Prathmesh Avinash Patil	<u>Prathesh</u>
26	Kunal Vasant Nannaware	<u>Kunal</u>
03	Amol Govinda Kumbhar	<u>Amol</u>
04	Ramchandra Bhatu Lohar	<u>Ramchandra</u>
50	Harshal Bharat Patil	<u>Harshal</u>
12	Pranav Bhaskar Mahajan	<u>Pranav</u>
13	Sumit Vinod Mahajan	<u>Sumit</u>

Attendance Sheet

Date and Sign		15/03/25	29/03/25	
SN	Name of faculty Member	Dept.		
1	Dr. P.A. Shirule	Civil		02
2	Dr. F.I. Chavan	Civil		04
3	Dr. Sonali B. Patil	Civil		03
4	Mr. J.N. Kale	Civil		03
5	Ms. Jyoti R. Mali	Civil		05
6	Pankaj Ramdas Punase	Civil		03
7	Ms. Dipika Purushottam Mali	Civil		01
8	Kalyani Ganesh Bendale	Civil		00
9	Dr. K.P. Adhiya	Computer		04
10	Dr. Manoj E Patil	Computer		04
11	Mr. Ashish T. Bhole	Computer		04
12	Dr. Akash D. Waghmare	Computer		06
13	Dr. Dnyaneshwar K. Kirange	Computer		06
14	Dr. Pankaj H. Zope	Computer		03
15	Dr. Surendra P. Ramteke	Computer		06
16	Ms. Shital A. Patil	Computer		03
17	Mr. Sarkarsinha Harshinha Rajput	Computer		05
18	Mr. Mohan Pramod Patil	Computer		05
19	Mr. Ramkrishna Hari Patil	Computer		05
20	Mr. Pramodgiri B. Gosavi	Computer		02
21	Ms. Priyanka Vinod Medhe	Computer		06
22	Mr. Krunal Chadrashekhwar Pawar	Computer		03
23	Ms. Pooja Mukundrao Khandar	Computer		03
24	Ms. Ashwini Arun Kakde	Computer		03
25	Ms. Mayuri Rajesh Chandratre	Computer		04
26	Ms. Shama S Pawar	Computer		03
27	Mr. Mohammed Shafique Shaikh	Computer		05
28	Ms. Tejashri Anil Patil	Computer		—
29	Ms. Prachi Pushkaraj Chaudhari	Computer		—
30	Ms. Utkarsha Prmod Narkhede	Computer		—
31	Ms. Soniya Premraj Chaudhari	Computer		—
32	Ms. Dipali Daulatrao Phadat	Computer		—
33	Mr. V. S. Pawar	Electrical		03
Pranesh S. Sarda		02/12		02

Attendance Sheet

Date and Sign			15/03/25	29/03/25	
SN	Name of faculty Member	Dept.			
34	Mr. M. Mujtahid Ansari	Electrical			05
35	Dr. Suhas M. Shembekar	Electrical		—	04
36	Dr. Rajesh R. Karhe	Electrical			04
37	Mr. Muqem Khan	Electrical	—		04
38	Mr. Tanveer Khatik	Electrical		—	04
39	Mr. Vijay Abaji Shinde	Electrical			02
40	Dr. M.P. Deshmukh	E&TC	—		04
41	Dr. V.M. Deshmukh	E&TC			04
42	Dr. N.M. Kazi	E&TC			04
43	Dr. Atul H. Karode	E&TC		—	04
44	Mr. Sunil K. Khode	E&TC		—	03
45	Ms. Rajashri B. Patil	E&TC			05
46	Dr. P.G. Damle	Mechanical		—	04
47	Mr. N. K. Patil	Mechanical	—		04
48	Dr. K. Shrivastav	Mechanical		—	02
49	Dr. Devendra B. Sadaphale	Mechanical			04
50	Dr. P. M. Solanki	Mechanical		—	04
51	Dr. Ajay R. Bhardwaj	Mechanical			03
52	Dr. Dipak C. Talele	Mechanical			05
53	Dr. Vijay R. Diware	Chemical	—		04
54	Dr. S. A. Thakur	Chemical	—	—	03
55	Mr. V. P. Sangore	Chemical	—		04
56	Mrs. Sarika S. Pawar	Chemical		—	03
57	Mrs. Ruchita S. Naik	Chemical		—	04
58	Dr. Sandip S. Patil	First Year			05
59	Dr. K. S. Patil	First Year	—	—	02
60	Dr. Sunita S. Patil	First Year	—	—	04
61	Dr. Prashant N. Ulhe	First Year			05
62	Mr. Amol Chandrakan Wani	First Year	—	—	03
63	Ms. Priti Ramesh Sharma	First Year		—	02
64	C.U. Nikam	First Year		—	01

Attendance Sheet

Date and Sign		Dept		Signs 29/01/21	
Sl. No.	Name of Faculty Member	Dept			
61	Mr. Pratik D. Patel	First Year	P	P	04
62	Mr. Dhanendra J. Doshi	First Year			04
63	Mr. Mahendra S. Patel	First Year			01
64	Mr. Manoj Prasad Kulkarni	First Year			04
65	Mr. Dharmendra Chandrakant Vagade	First Year			03
66	Dr. Anand T. Patel	First Year			03
67	Mrs. Nitesh Sawant	First Year			01
68	Mr. Tarun S. Chaudhari	First Year			07
69	Mrs. Anil Dhanraj Patel	First Year			00
70	Mr. Dhanendra S. Vagade	First Year			03
71	Mrs. Poo Manoj Mali	First Year			14
72	Mr. Dhanendra S. Chaudhari	First Year			12
73	Mr. Sachin Tejendra Bhalekar	First Year			13
74	Dr. Mahesh S. Rawlani	MBA			03
75	Dr. Rishi A. Modhyan	MBA			04
76	Mr. Farooq A. Khan	MBA			04
77	Mrs. Bharti F. Joshi	MBA			05
78	Mrs. Sakshi Manoj Modhyan	MBA			04
79	Mr. Rishabh Sunil Patel	MBA			12
80	Mr. Anand Dhanraj Sawant	MBA			12
81	Dr. Pooja Tulsi Vagade	MBA			
82	Mr. Tejendra Dhanraj Vagade	MBA			
83	Mr. Anand Dhanraj	MBA			
84	Mr. Dhanendra Bhalekar	MBA			
85	Mr. Dhanendra Bhalekar	MBA			
86	Mr. Dhanendra Bhalekar	MBA			
87	Mr. Dhanendra Bhalekar	MBA			
88	Mr. Dhanendra Bhalekar	MBA			
89	Mr. Dhanendra Bhalekar	MBA			
90	Mr. Dhanendra Bhalekar	MBA			
91	Mr. Dhanendra Bhalekar	MBA			
92	Mr. Dhanendra Bhalekar	MBA			
93	Mr. Dhanendra Bhalekar	MBA			
94	Mr. Dhanendra Bhalekar	MBA			
95	Mr. Dhanendra Bhalekar	MBA			
96	Mr. Dhanendra Bhalekar	MBA			
97	Mr. Dhanendra Bhalekar	MBA			
98	Mr. Dhanendra Bhalekar	MBA			
99	Mr. Dhanendra Bhalekar	MBA			
100	Mr. Dhanendra Bhalekar	MBA			

Attendance Sheet

SN	Name of faculty Member	Dept.	08/02/25	15/2/25	08/03/25	
1	Dr. P.A. Shirule	Civil				2
2	Dr. F.I. Chavan	Civil				2
3	Dr. Sonali B. Patil	Civil				1
4	Mr. J.N. Kale	Civil				1
5	Ms. Jyoti R. Mali	Civil				3
6	Pankaj Ramdas Punase	Civil				2
7	Ms. Dipika Purushottam Mali	Civil				0
8	Kalyani Ganesh Bendale	Civil				0
9	Dr. K.P. Adhiya	Computer				2
10	Dr. Manoj E. Patil	Computer				2
11	Mr. Ashish T. Bhole	Computer				3
12	Dr. Akash D. Waghmare	Computer				3
13	Dr. Dnyaneshwar K. Kirange	Computer				2
14	Dr. Pankaj H. Zope	Computer				2
15	Dr. Surendra P. Ramteke	Computer				3
16	Ms. Shital A. Patil	Computer				1
17	Mr. Sarkarsinha Harshinha Rajput	Computer				2
18	Mr. Mohan Pramod Patil	Computer				0
19	Mr. Ramkrishna Hari Patil	Computer				3
20	Mr. Pramodgiri B. Gosavi	Computer				
21	Ms. Priyanka Vinod Medhe	Computer				2
22	Mr. Krunal Chadrashankar Pawar	Computer				2
23	Ms. Pooja Mukundrao Khandar	Computer				2
24	Ms. Ashwini Arun Kakde	Computer				2
25	Ms. Mayuri Rajesh Chandratre	Computer				2
26	Ms. Shama S. Pawar	Computer				2
27	Mr. Mohammed Shafique Shaikh	Computer				2
28	Ms. Tejashri Anil Patil	Computer				
29	Ms. Prachi Pushkaraj Chaudhari	Computer				
30	Ms. Utkarsha Prmod Narkhede	Computer				
31	Ms. Soniya Premraj Chaudhari	Computer				
32	Ms. Dipali Daulatrao Phadat	Computer				
33	Mr. V. S. Pawar	Electrical				2

Attendance Sheet

SN	Name of faculty Member	Dept.	08/02/25	15/02/25	08/03/25	
34	Mr. M. Mujtahid Ansari	Electrical				3
35	Dr. Suhas M. Shembekar	Electrical				3
36	Dr. Rajesh R Karhe	Electrical				3
37	Mr. Muqem Khan	Electrical				3
38	Mr. Tanveer Khatik	Electrical				3
39	Mr. Vijay Abaji Shinde	Electrical				3
40	Dr. M.P. Deshmukh	E&TC				3
41	Dr. V.M. Deshmukh	E&TC				2
42	Dr. N.M. Kazi	E&TC				2
43	Dr. Atul H. Karode	E&TC				3
44	Mr. Sunil K. Khode	E&TC				3
45	Ms. Rajashri B Patil	E&TC				3
46	Dr. P.G. Damle	Mechanical				3
47	Mr. N. K. Patil	Mechanical				3
48	Dr. K. Shrivastav	Mechanical				1
49	Dr. Devendra B. Sadaphale	Mechanical				2
50	Dr. P. M. Solanki	Mechanical				3
51	Dr. Ajay R. Bhardwaj	Mechanical				3
52	Dr. Dipak C. Talele	Mechanical				3
53	Dr. Vijay R. Diware	Chemical				3
54	Dr. S. A. Thakur	Chemical				3
55	Mr. V. P. Sangore	Chemical				3
56	Mrs. Sarika S. Pawar	Chemical				3
57	Mrs. Ruchita S. Naik	Chemical				3
58	Dr. Sandip S. Patil	First Year				1
59	Dr. K. S. Patil	First Year				3
60	Dr. Sunita S. Patil	First Year				3
61	Dr. Prashant N. Ulhe	First Year				3
62	Dr. Amol Chandrakan Wani	First Year				3
63	Ms. Priti Ramesh Sharma	First Year				3
64	C.U. Nikam	First Year				1

Attendance Sheet

SN	Date and Sign	Dept.	08/02/25	15/2/2025	08/03/25	
65	Mr. Pravin D. Patil	First Year	P	P	—	2
66	Ms. Deepmala I. Desai	First Year	Desai	Desai	Desai	6
67	Mr. Mahendra B. Patil	First Year	—	—	—	0
68	Ms. Meera Prassan Kulkarni	First Year	Yashwanth	—	Yashwanth	6
69	Ms. Dhanashree Shashikant Tayade	First Year	D.	—	D.	2
70	Ujawalsing T. Patil	First Year	Patil	Patil	—	2
71	Mrs. Nancy Sawhney	First Year	—	—	—	1
72	Ms. Tanuja Y. Chouhan	First Year	—	—	Tanuja	1
73	Mrs. Anjali Darshan Patil	First Year	—	—	—	0
74	Ms. Jayashree R. Tayade	First Year	R. Tayade	R. Tayade	R. Tayade	3
75	Mrs. Puja Mayur Malu	First Year	—	Malu	Malu	2
76	Mr. Dashrath U. Chaudhari	First Year	Dashrath	—	Dashrath	2
77	Mr. Sachin Topalu Bhalerao	First Year	Sachin	Sachin	Sachin	6
78	Dr. Mahesh V. Rawlani	MBA	—	—	—	1
79	Dr. Richa A. Modiyani	MBA	—	—	—	2
80	Ms. Farooz A. Kazi	MBA	—	—	—	2
81	Mrs. Bharti P. Joshi	MBA	B. Joshi	B. Joshi	B. Joshi	3
82	Mrs. Sakina Mujahid Husain	MBA	Sakina	Sakina	Sakina	3
83	Mr. Rohan Suresh Patil	MBA	—	R. Patil	R. Patil	2
84	Ms. Vrushali Dinkar Sonawane	MBA	V.S.	V.S.	—	2
85	Dr. Puri Dinesh Dagadu	MCA	Puri	Puri	Puri	2
86	Ms. Sapana Ananrao Fegade	MCA	Sapana	Sapana	—	2
87	Mr. Aslan Shaikh	MCA	Aslan	Aslan	—	2
88	Ms. Dhanshee Rajendra Shinde	MCA	—	—	—	0
89	Ms. Chetana Mohan Kawale	MCA	Chetana	Chetana	Chetana	2
90	Ms. Vishakha Yadonao Pande	MCA	V. Pande	V. Pande	V. Pande	2
91	Ms. Bhagyashri Suresh Patil	MCA	—	—	—	1
92	Ms. Reeta Vinod Patil	MCA	Reeta	Reeta	Reeta	2
93	Dr. Sudhir S. Patil	Library	Sudhir	Sudhir	—	2
94	Nikita Gokul Patil	civil	—	Nikita	Nikita	2
95	V. S. Pawan	steriod	Pawan	Pawan	Pawan	2
96	Aravesh Sonawane	civil	—	—	—	1