

## DEPARTMENT OF MECHANICAL ENGINEERING

Date: 13.12.2025

### Minutes of Board of Studies Meeting

Board of Studies (BoS) meeting of B. Tech in Mechanical Engineering, B. Tech. in Robotics & Automation, and M. Tech. programmes was conducted on 13.12.2025 in blended mode from 10.00 AM to 2.00 PM. The physical meeting will be held at U-Block, Ground Floor, (AGF-06).

The ZOOM online link for the meeting is:

<https://us05web.zoom.us/j/87216827414?pwd=MlMiF6p7hJyxlZRHMdtP9s5aHp2OfC.1>

**Agenda of the BoS Meeting:**

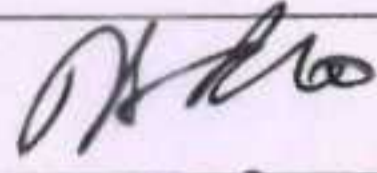

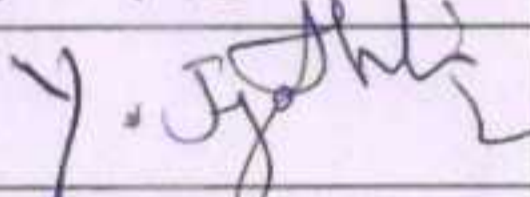
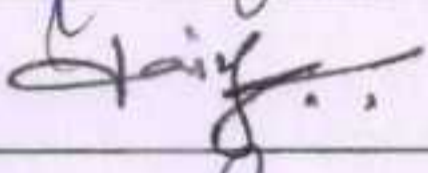
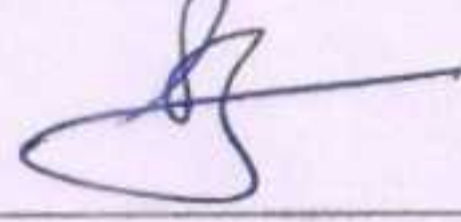
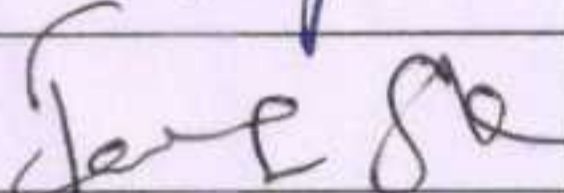
1. List of NPTEL courses offering as an open elective for the B.Tech II and III year students of Mech. and Robotics and Automation in the 2025-26 II semester.
2. 2024-25 II semester results analysis.
3. To discuss the introduction of new M.Tech. Program in “**Smart Manufacturing**”.
4. Syllabus revision of open elective course “Humanoid Robots” in R22 C24 offered by Robotics and Automation.
5. Action taken report of the previous BoS.
6. Any other points, with the permission of chair.

**Points for information:**

- Floating of R25 C25 honor degree stream to current R22 C24 II year Robotics and Automation students.
- Revised R22 formative assessment.

The following members were present either thorough offline or online.

Sl. No	Name and Designation of the member	Position	Signature
1	Dr. M. Ramakrishna Professor and School Dean, VFSTR.	Chairperson	
2	Dr. N. Narayan Rao HoD and Associate Professor, VFSTR.	Invited member (School Dean nominee)	
3	Prof. Nagumothu Kishore Babu Professor & HoD, NITW	External member (Academia)	
4	Dr. Brajesh Kumar Kanchan Assistant Manager, AmaraRaja Advanced Cell Technologies.	External member (Industry)	 13/12/2025

5	Dr. D. Ravi Kumar Associate dean and research & Associate professor, Mechanical Engineering, VNIT ,Nagpur	Invited member (Academia)	Attended in Online Mode
6	Prof. (Dr). V. Pandu Ranga, Professor & Dean, IIT Bhubaneswar.	Invited member (Academia)	Attended in Online Mode
7	Dr. B. Nageswara Rao Professor, VFSTR.	Internal member	
8	Dr. D. Satyanarayana Professor, VFSTR.	Internal member	
9	Dr. G. Suresh Officiating Professor, VFSTR.	Internal member	on medical leave
10	Dr. Y. Jyothi Associate Professor, VFSTR.	Internal member	
11	Dr. MD. Faiyaz Ahmed Assistant Professor, VFSTR.	Invited member (Dean R&D nominee)	
12	Dr. Sanjay Kumar Gupta Officiating Associate Professor, VFSTR.	Internal member	
13	Dr. K Durga Rao Assistant Professor, VFSTR.	Internal member	K Durga Rao
14	Dr. Sk Farooq Assistant Professor, VFSTR.	Member Secretary	

**The following points were discussed in the BoS meeting:**

1. The meeting commenced with a formal welcome and greetings to all internal and external members attending both in offline and online modes.
2. The agenda points for the current BoS meeting were presented to the members.
3. The action taken report on the resolutions of the previous BoS meeting was placed before the Board.
4. A proposal for the introduction of an M.Tech. programme in Smart Manufacturing was presented.

\*L- Number of Lecture Hours;  
P-Number of Practical Hours;

T-Number of Tutorial Hours;  
C-Credits; SL-Self Learning

I Year I Semester							
S. No.	Title of the Course	Core/Elective	L	T	P	SL	C
1	IIoT and Smart Factories	Core	2	2	2	2	4
2	Data Structure & Algorithms	Core	2	2	2	2	4

3	Industry4.0	Core	2	2	2	2	4
4	Elective I	Elective	2	2	2	2	4
5	Elective II	Elective	2	2	2	2	4
6	Elective III	Elective	2	2	2	2	4
Total							24

### I Year II Semester

S. No.	Title of the Course	Core/Elective	L	T	P	SL	C
1	Digital Twin in Manufacturing	Core	2	2	2	2	4
2	Machine Learning Techniques for Industrial Applications	Core	2	2	2	2	4
3	Applied AI for Manufacturing	Core	2	2	2	2	4
4	Elective IV	Elective	2	2	2	2	4
5	Elective V	Elective	2	2	2	2	4
6	Elective VI	Elective	2	2	2	2	4
7	Seminar and Technical Writing				2	2	2
Total							26

### II Year I Semester

S. No.	Title of the Course	L	T	P	SL	C
1	Industry support Internship	-	-	24	-	10
Total						10

### II Year II Semester

S. No.	Title of the Course	L	T	P	SL	C
1	Industry support Internship	-	-	24	-	15
Total						15

**Electives:**

S. No	Course Title/Name	L-T-P	Credits
1	Scientific Computing for Mechanical Engineering	2-2-2	4
2	Big Data Analytics for Industrial Application	2-2-2	4
3	Systems Modelling and Analysis	2-2-2	4
4	Industrial Robotics and Simulation	2-2-2	4
5	Cloud Manufacturing	2-2-2	4
7	Machine Vision Systems	2-2-2	4
8	ReverseEngineeringand3D Printing	2-2-2	4
9	AI-ML-Data Analytics	2-2-2	4
10	AR and VR for Design and Manufacturing	2-2-2	4
11	Autonomous Robots	2-2-2	4
12	Embedded Systems & IoT	2-2-2	4
13	Creative Engineering Design	2-2-2	4
14	Computer integrated manufacturing	2-2-2	4
15	Industrial Robotics and Simulation	2-2-2	4
16	Sensors for IIoT	2-2-2	4
17	Sustainable Manufacturing	2-2-2	4
18	Cyber security for Manufacturing	2-2-2	4

5. The detailed curriculum structure for the proposed M.Tech. programme was presented.
6. Members sought clarification on career opportunities for M.Tech. students after completion of the programme, including placement prospects and the one-year project component.
7. Queries were raised regarding the inclusion of traditional manufacturing subjects within the proposed curriculum structure.
8. Suggestions were made to strengthen the curriculum by incorporating core manufacturing science subjects.
9. Recommendations were provided to include advanced welding concepts, either integrated within relevant subjects or as a separate course.

10. The inclusion of a subject related to manufacturing standards in the postgraduate curriculum was discussed.

11. Members enquired about the incorporation of cybersecurity or cyber-physical systems (CPS) related courses in the programme.

12. A discussion was held on outcome-based (product development) degree awarding practices followed internationally, with a suggestion to explore the feasibility of adopting similar approaches for the proposed programme.

13. All queries and concerns raised by the external members were addressed satisfactorily.

14. A list of relevant NPTEL courses proposed to be offered as elective subjects was presented for consideration by the BoS members.

### III Year Mechanical Engineering:

S. No.	Course Title	Offered by	Course instructor
1	Industrial Hydraulics and Automation	IIT (ISM) Dhanbad	Prof. Niranjana Kumar, Prof. Ajit Kumar
2	Business Fundamentals for Entrepreneurs	IIT Bombay	Prof. Devdip Purkayastha
3	Designing Work Organization	IIT Roorkee	Prof. Santosh Rangnekar
4	Elements of Solar Energy Conversion	IIT Kanpur	Prof. Jishnu Bhattacharya
5	Product Design and Manufacturing	IIT Kanpur	Prof. J. Ramkumar, Prof. Amandeep Singh Oberoi

### III Mechanical Engineering:

S. No.	Course Title	Offered by	Course instructor
1	Introduction to Machine Learning	IIT Madras	Prof. Balaraman Ravindran
2	Business Fundamentals for Entrepreneurs	IIT Bombay	Prof. Devdip Purkayastha
3	Advanced Robotics	IIT Kanpur	Prof. Ashish Dutta
4	Control Engineering for Robotics	IIT Guwahati	Prof. Chayan Bhawal
5	Product Design and Manufacturing	IIT Kanpur	Prof. J. Ramkumar, Prof. Amandeep Singh Oberoi

### IV Year Mechanical Engineering:

S. No.	Course Title	Offered by	Course instructor
1	Computer Integrated Manufacturing	IIT Kanpur	Prof. J. Ramkumar, Prof. Amandeep Singh Oberoi
2	Operations Management	Indian Institute of	B Mahadevan

		Management Bangalore	
3	Failure Analysis and Prevention	IIT Roorkee	Prof. D K Dwivedi
4	Engine Systems and Performance	IIT Guwahati	Prof. Pranab K. Mondal
5	Sound and Structural Vibration	IISc Bangalore	Prof. Venkata R. Sonti
6	Ethics in engineering practice	IIT Kharagpur	Prof. Susmita Mukhopadhyay

### II Year Robotics and Automation:

S. No.	Course Title	Offered by	Course instructor
1	Industrial Hydraulics and Automation	IIT (ISM) Dhanbad	Prof. Niranjana Kumar, Prof. Ajit Kumar
2	Business Fundamentals for Entrepreneurs	IIT Bombay	Prof. Devdip Purkayastha
3	Designing Work Organization	IIT Roorkee	Prof. Santosh Rangnekar
4	Sensors and Actuators	IISc Bangalore	Prof. Hardik Jeetendra Pandya
5	Product Design and Manufacturing	IIT Kanpur	Prof. J. Ramkumar, Prof. Amandeep Singh Oberoi

### III Year Robotics and Automation:

S. No.	Course Title	Offered by	Course instructor
1	Introduction to Machine Learning	IIT Madras	Prof. Balaraman Ravindran
2	Business Fundamentals for Entrepreneurs	IIT Bombay	Prof. Devdip Purkayastha
3	Advanced Robotics	IIT Kanpur	Prof. Ashish Dutta
4	Sensors and Actuators	IISc Bangalore	Prof. Hardik Jeetendra Pandya
5	Product Design and Manufacturing	IIT Kanpur	Prof. J. Ramkumar, Prof. Amandeep Singh Oberoi

### IV Year Robotics and Automation:

S. No.	Course Title	Offered by	Course instructor
1	Principles of industrial engineering	IIT Roorkee	Prof. D K Dwivedi
2	Computer integrated	IIT Kanpur	Prof. J. Ramkumar, Prof.

	manufacturing		Amandeep Singh Oberoi
3	Sensors and actuators	IISc Bangalore	Prof. Hardik Jeetendra Pandya
4	Operation Management	Indian Institute of Management Bangalore	Prof. B Mahadevan
5	Ethics for engineering practice	IIT Kharagpur	Prof. Susmita Mukhopadhyay

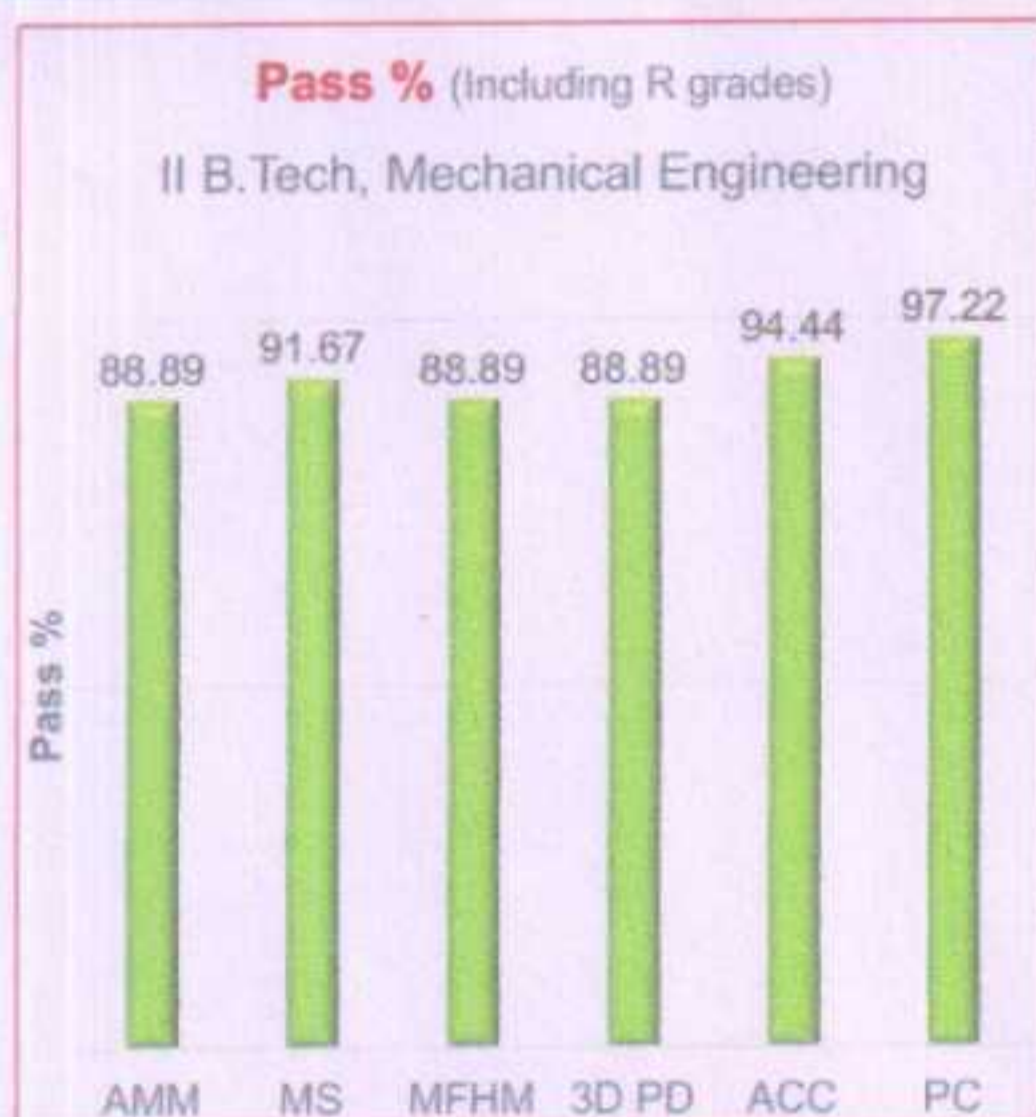
15. The revised syllabus for a course on Humanoid Robots offering as an open elective under the Robotics and Automation programme was presented with revised assessment pattern (T1 to T5) as per VFSTR norms of R22 C24.

16. The syllabus for the Design Thinking course was presented, and suggestions were invited to enhance and enrich the curriculum.

17. Members suggested the inclusion of prototype development, minor projects, and hands-on components to strengthen the Design Thinking course.

18. The result analysis of 2024-25 II semester undergraduate programmes in Mechanical Engineering and Robotics & Automation was presented.

#### Summative Assessment, 2024-25 II Semester



Student Strength : 36

No. of individual students in 'R' grade : 4

No. of individual students in 'I' grade : 5

No. of students passed in all courses (excluding 'R' grade) : 30/32 (93.75 %)

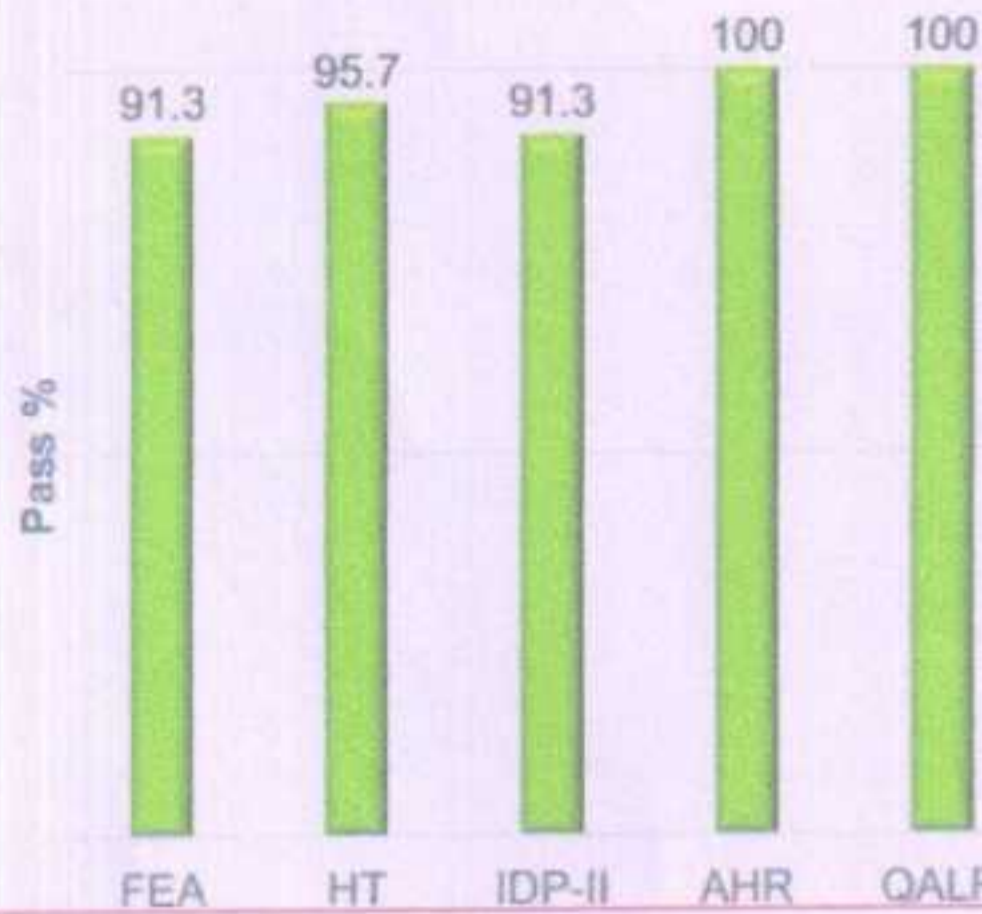
No. of students passed in all courses (including 'R' grade) : 30/36 (83.33 %)

Course Code	Course Name	Short Name	Appeared	Passed
22ME204	Analysis of Mechanisms & Machines	AMM	34	32
22ME205	Manufacturing Sciences	MS	33	33
22ME206	Mechanics of Fluids & Hydraulic Machines	MFHM	35	32
22ME801	3D Printing & Design	3D PD	34	32
22TP203	Advanced Coding Competency	ACC	34	34
22TP204	Professional Communication	PC	36	35

Summative Assessment, 2024-25 II Semester

**Pass %** (Including R grades)

III B.Tech, Mechanical Engineering



Student Strength : 23

No. of individual students in 'R' grade : 2

No. of individual students in 'I' grade : 1

No. of students passed in all courses (excluding 'R' grade) : 20/21 (95.24 %)

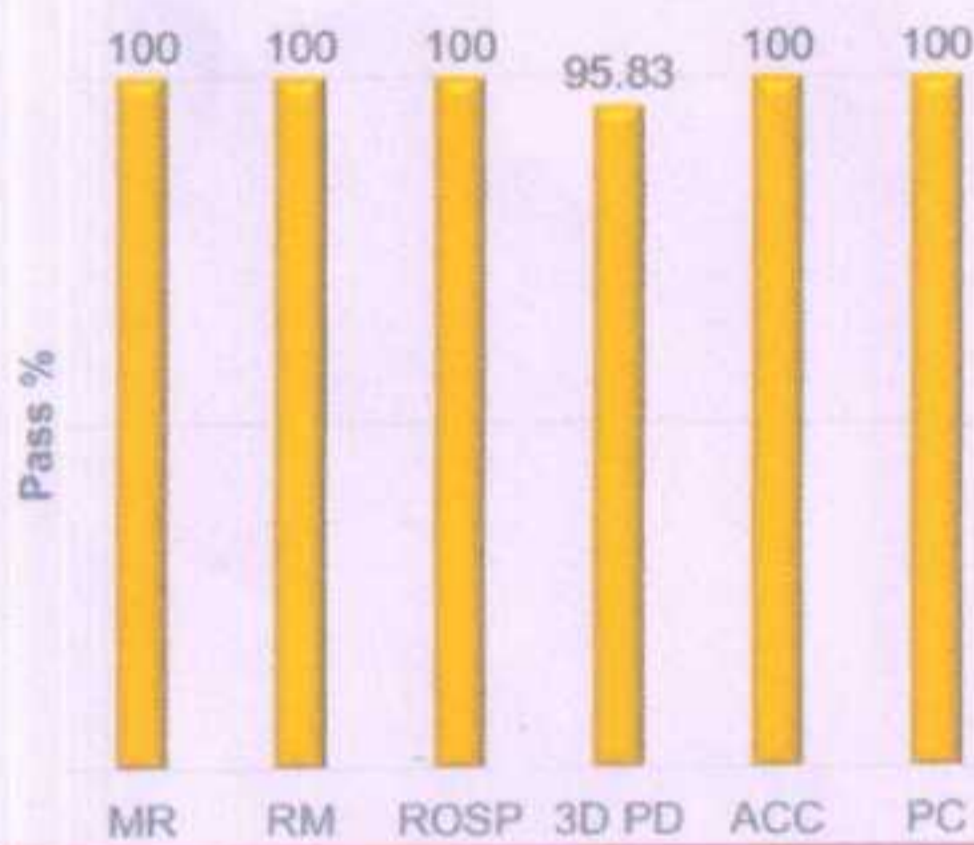
No. of students passed in all courses (including 'R' grade) : 20/23 (86.96 %)

Course Code	Course Name	Short Name	Appeared	Passed
22ME305	Finite Element Analysis	FEA	22	21
22ME306	Heat Transfer	HT	22	22
22ME307	Inter Departmental Project-ii	IDP-II	21	21
24RA803	Anatomy of Humanoid Robots	AHR	23	23
22TP302	Quantitative Aptitude & Logical Reasoning	QALR	23	23
22MS909	Marketing and Finance For Startups (OE)	MFS	3	2

Summative Assessment, 2024-25 II Semester

**Pass %** (Including R grades)

II B.Tech, Robotics & Automation



Student Strength : 24

No. of individual students in 'R' grade : NIL

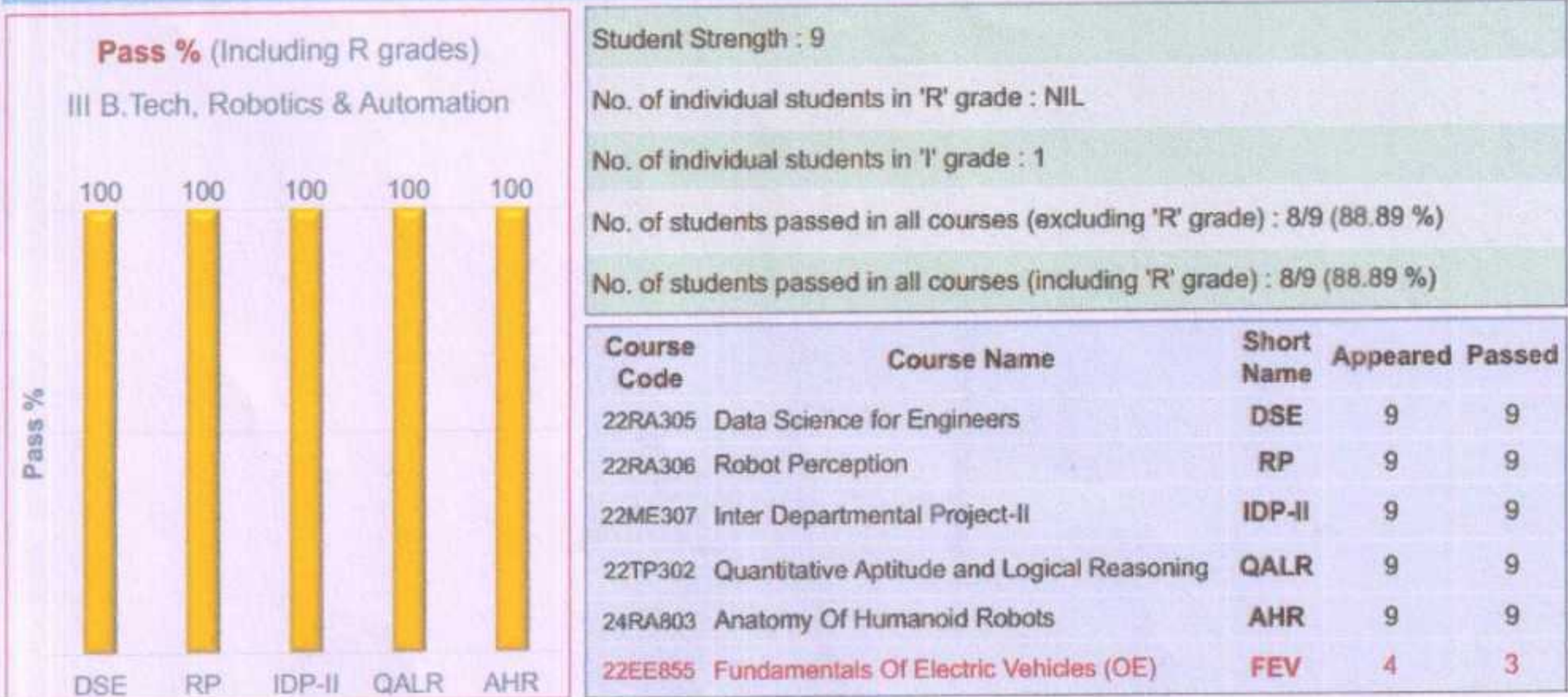
No. of individual students in 'I' grade : 1

No. of students passed in all courses (excluding 'R' grade) : 23/24 (95.83 %)

No. of students passed in all courses (including 'R' grade) : 23/24 (95.83 %)

Course Code	Course Name	Short Name	Appeared	Passed
22RA202	Mobile Robotics	MR	24	24
22RA203	Robot Mechanisms	RM	24	24
22RA204	ROS Programming	ROSP	24	24
22ME801	3D Printing & Design	3D PD	24	23
22TP203	Advanced Coding Competency	ACC	24	24
22TP204	Professional Communication	PC	24	24

Summative Assessment, 2024-25 II Semester



II Year I Sem, Mechanical Engineering

Student Strength : 36



III Year I Sem, Mechanical Engineering

Student Strength : 33



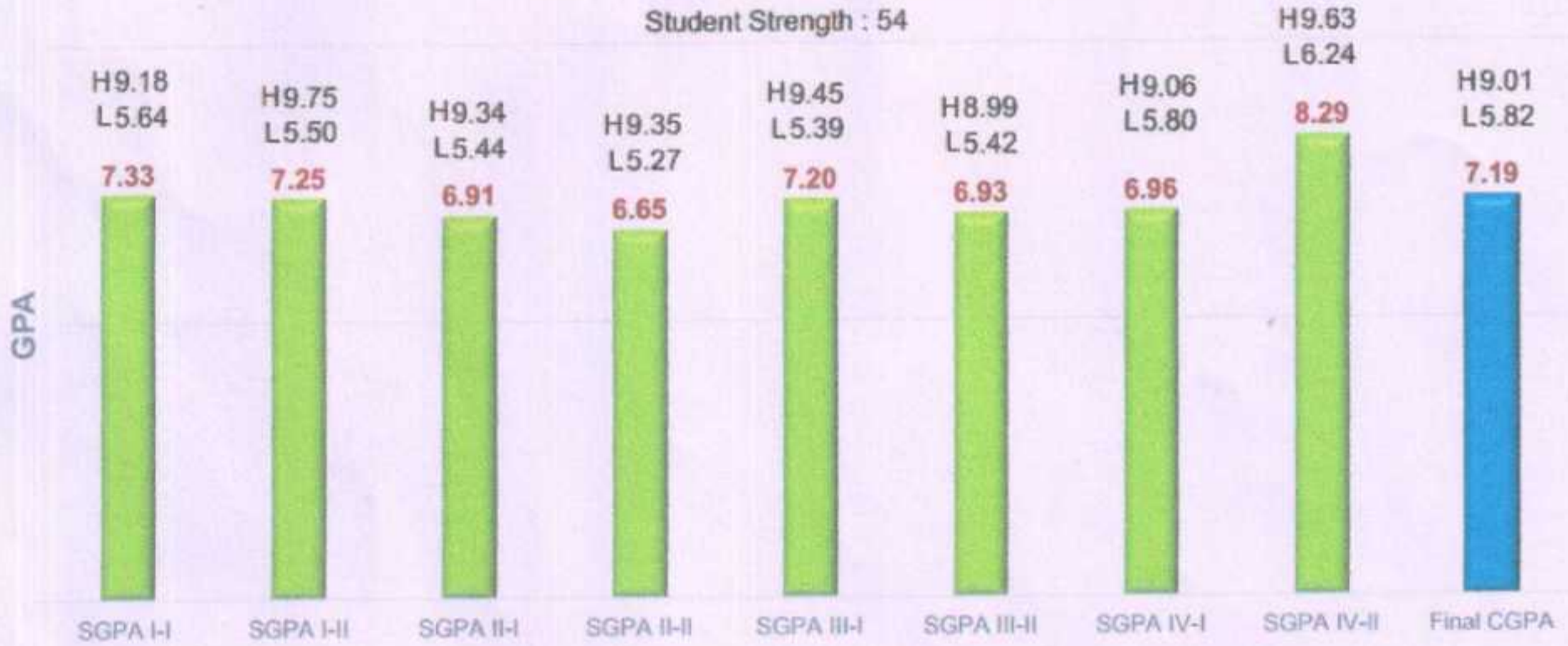
IV Year I Sem, Mechanical Engineering

Student Strength : 23



2021-25 Batch, Mechanical Engineering

Student Strength : 54



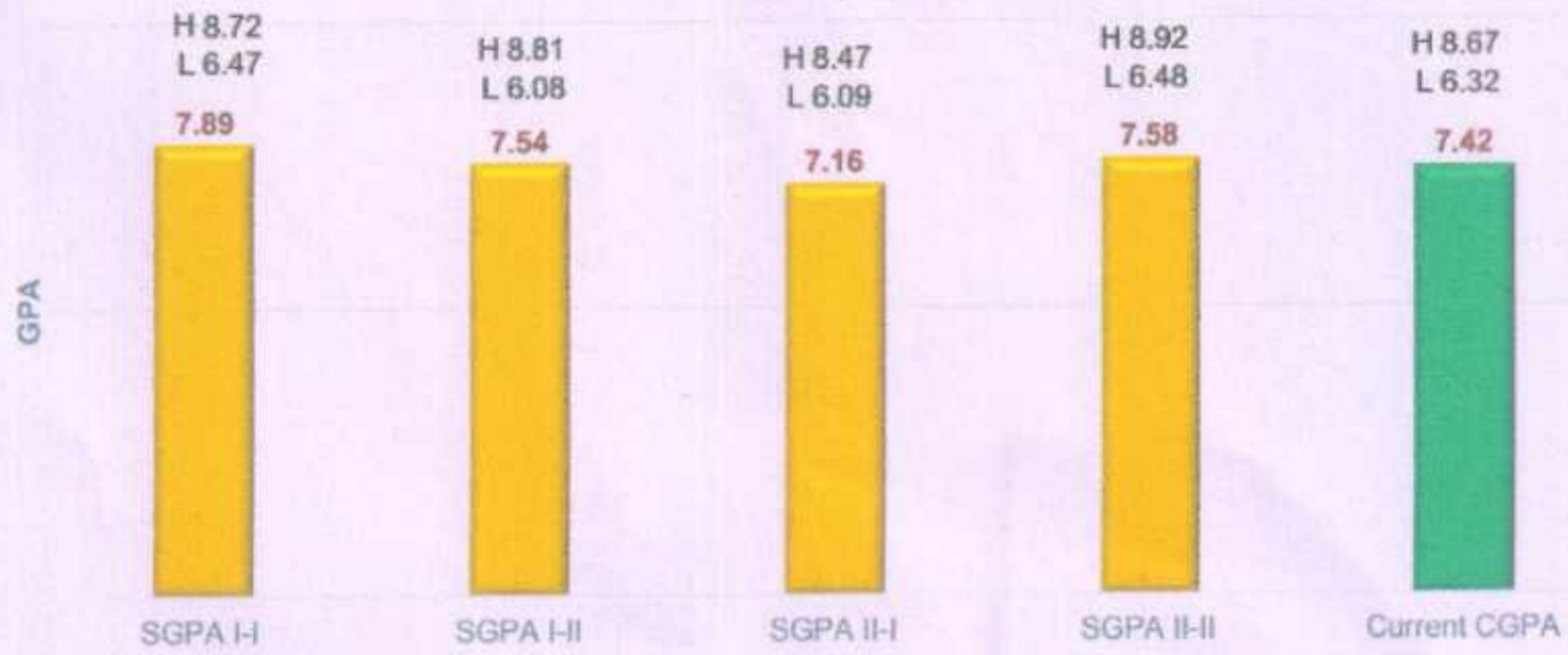
II Year I sem, Robotics & Automation

Student Strength : 43



III Year I sem, Robotics & Automation

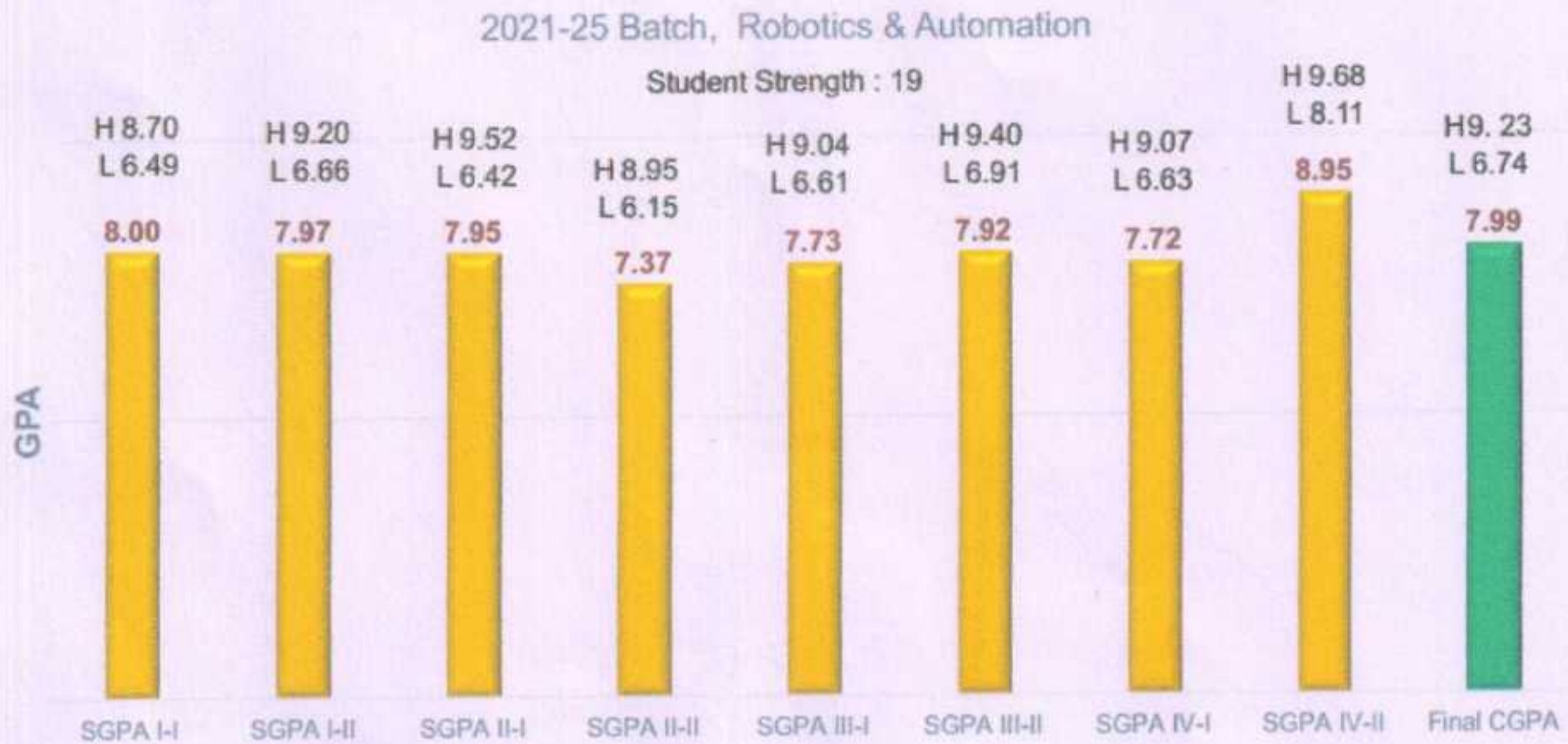
Student Strength : 24



IV year I sem, Robotics & Automation

Student Strength : 09





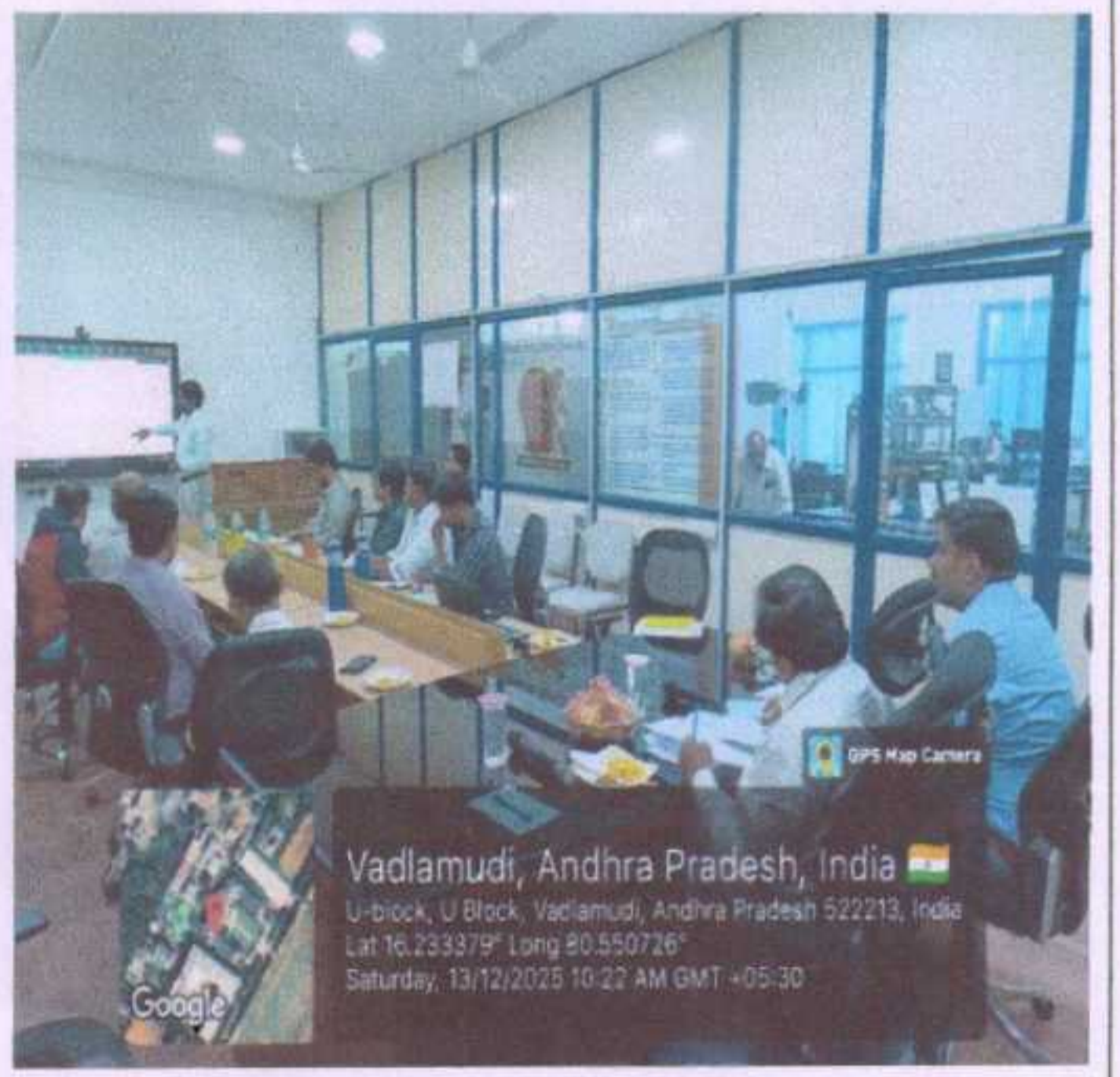
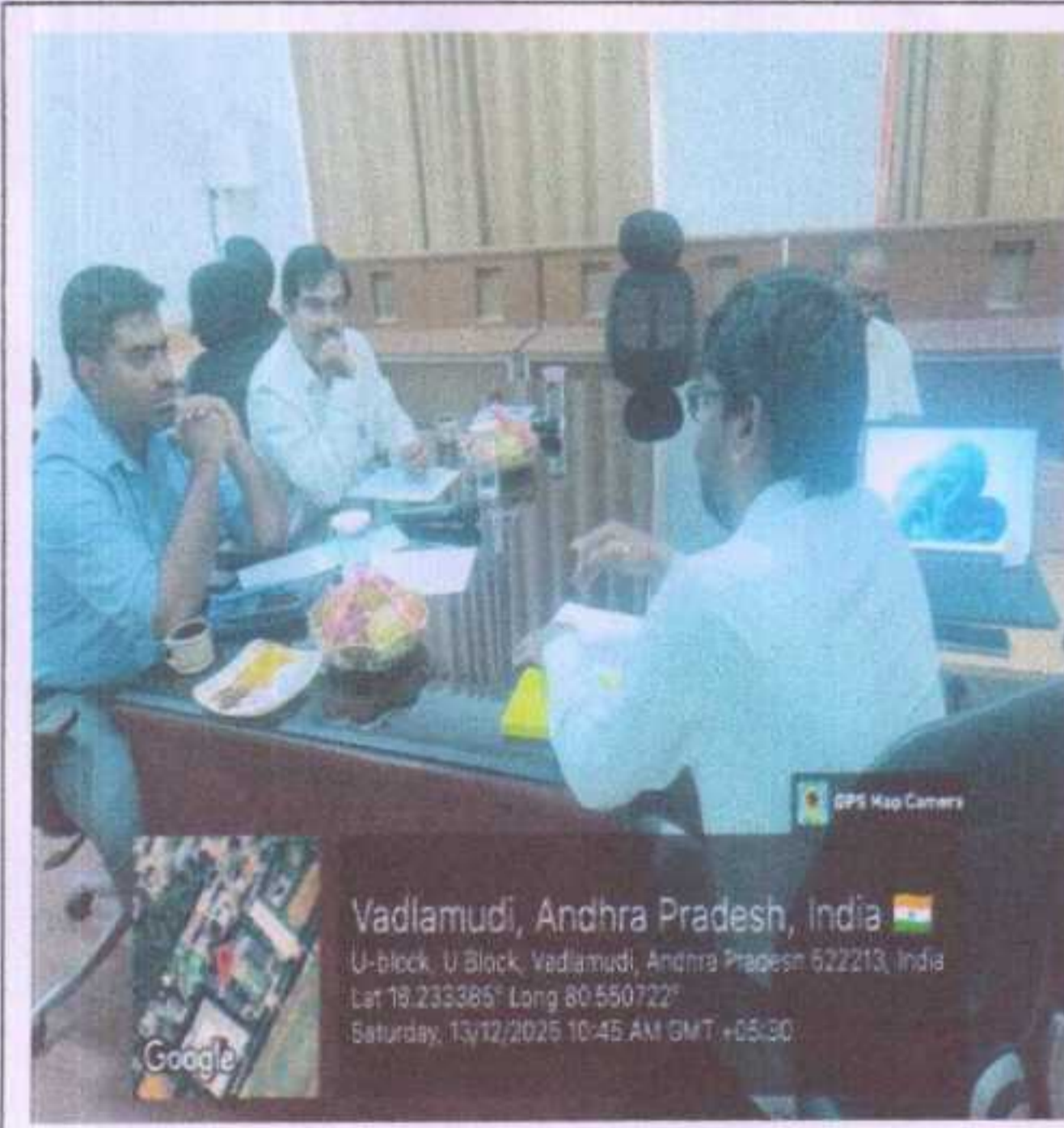
19. Members enquired about the support mechanisms for slow learners, and the existing mentoring and academic support processes were explained.

**The following recommendations and approvals are made after the discussion:**

After detailed discussions, the Board of Studies made the following key recommendations and approvals:

1. Approved the introduction of the M.Tech. programme in Smart Manufacturing, with recommendations to strengthen the curriculum by including traditional manufacturing, advanced welding, manufacturing standards, and relevant cyber security/CPS concepts.
2. Approved the proposed NPTEL elective courses and the syllabus for the Humanoid Robots course under the Robotics and Automation programme.
3. Recommended enhancement of the Design Thinking course through the inclusion of prototype development, minor projects, and hands-on learning components.
4. Approved the undergraduate result analysis and appreciated the existing mentoring and academic support mechanisms for slow learners.

After detailed discussions on all agenda items, the meeting concluded with a vote of thanks to all members, including those who participated in the online mode.



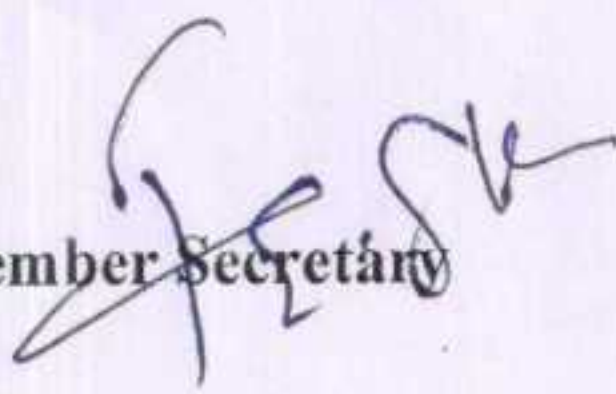
**Member Secretary**


**Chairperson**

## DEPARTMENT OF MECHANICAL ENGINEERING

### Action Taken Report (ATR) on the suggestions given in earlier BoS meeting

S. No.	Action Point	Response
1	Review of Action Taken Report of the previous BoS meeting.	The implementation status of previously approved academic and curriculum recommendations was reviewed and documented.
2	Presentation of NPTEL elective courses for B.Tech. II, III, and IV year students of Mechanical Engineering and Robotics & Automation.	The proposed list of NPTEL elective courses was reviewed and finalized based on curriculum relevance, multidisciplinary learning, and industry requirements.
3	Presentation of 2024-25 II semester undergraduate result analysis.	Detailed result analysis including subject-wise performance, pass percentage, SGPA, and CGPA trends was completed and reviewed.
4	Presentation of detailed curriculum structure for the proposed M.Tech. programme in Smart Manufacturing.	The curriculum framework for the proposed M.Tech. programme was prepared and presented for academic review and approval.
5	Inclusion of traditional manufacturing subjects within the Smart Manufacturing curriculum.	Core manufacturing science subjects were reviewed and incorporated into the proposed curriculum structure to maintain academic balance.
6	Presentation of revised syllabus for "Humanoid Robots" open elective course under Robotics & Automation.	The syllabus was revised to include updated concepts, practical applications, and revised T1-T5 assessment pattern as per VFSTR R22 C24 norms.

  
Member Secretary

  
Chairperson