

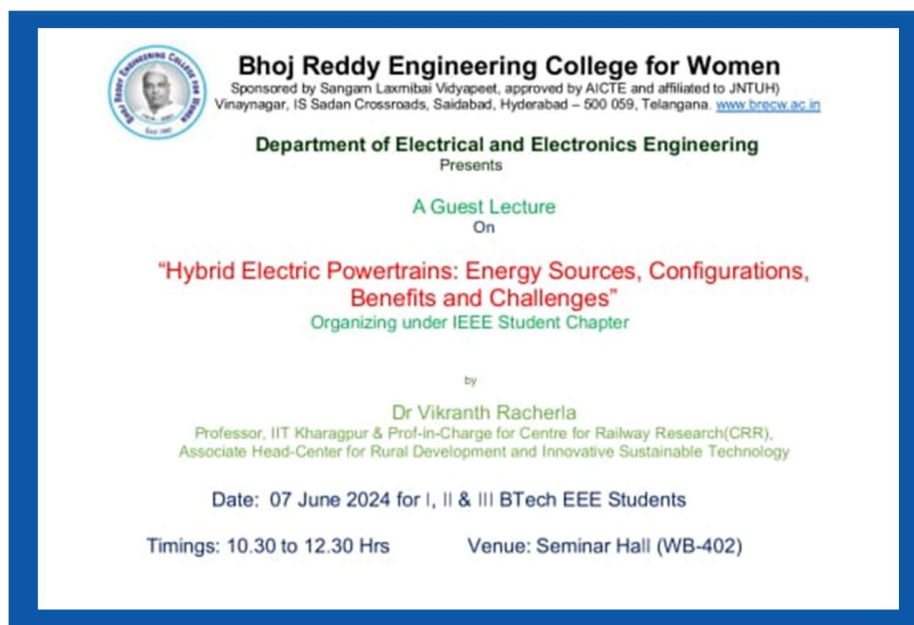


Bhoj Reddy Engineering College for Women

(Sponsored by Sangam Laxmibai Vidyapeet, approved by AICTE and affiliated to JNTUH)
Vinaynagar, IS Sadan Crossroads, Saidabad, Hyderabad – 500 059, Telangana www.brecw.ac.in

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ACTIVITY REPORT

General Information

Type of Activity	Foster interaction, Interactive Q&A Session, Case Studies and Real-Life Examples and Surveys
Title of the Activity	Guest Lecture
Date/s	07 June 2024
Time	from 10:30 to 12:30 Hrs
Venue	West Block Seminar Hall (WB-402)
Collaboration/Sponsor (if any)	SLV

Speaker/Guest/Presenter Details

Name	Dr Vikranth Racherla
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Title/Position	Professor & Prof-in-Charge for Centre for Railway Research(CRR), Associate Head-Center for Rural Development and Innovative Sustainable Technology
Organization	IIT Kharagpur
Title of Presentation	“Hybrid Electric Powertrains: Energy Sources, Configurations, Benefits and Challenges”
Short Profile of the Resource Person	<p>He completed his Post doctorate in paris. He completed his PhD in Mechanical Engineering and Applied Mechanics, May 2007 at UNIVERSITY OF PENNSYLVANIA. He completed his B. Tech. in Mechanical Engineering, May 2002 in INDIAN INSTITUTE OF TECHNOLOGY, MADRAS</p> 

Participants Profile

Type of Participants	I, II & III B Tech EEE students
No. of Participants	125 {34 (IEEE)+47(II EEE)+39 (III EEE)+ 5 Staff}

Highlights & Summary of the Activity	<p>Dr. Vikranth Racherla, a distinguished professor addressed various aspects of hybrid electric vehicles (HEVs), including energy sources, configurations, benefits, and the challenges they present. Dr Vikranth. Racherla’s extensive background in both railway research and sustainable technology added a unique perspective to the discussion.</p> <p>Key Topics Covered:</p> <ol style="list-style-type: none"> 1. Introduction to Hybrid Electric Powertrains: <ul style="list-style-type: none"> ○ Overview and definition of hybrid electric vehicles (HEVs). ○ Historical development and significance in the automotive industry. 2. Energy Sources for HEVs: <ul style="list-style-type: none"> ○ Different types of energy sources: Internal Combustion Engine (ICE), Electric Motor, and Batteries.
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	<ul style="list-style-type: none"> ○ Emphasis on renewable energy integration and sustainability. ○ Comparative analysis of battery technologies (Lithium-ion, Nickel-Metal Hydride, Solid-state). <p>3. Configurations of Hybrid Powertrains:</p> <ul style="list-style-type: none"> ○ Series Hybrid Configuration. ○ Parallel Hybrid Configuration. ○ Series-Parallel (Power-split) Hybrid Configuration. ○ Plug-in Hybrid Electric Vehicles (PHEVs). ○ Pros and cons of each configuration, with real-world examples. <p>4. Benefits of Hybrid Electric Powertrains:</p> <ul style="list-style-type: none"> ○ Enhanced fuel efficiency and lower emissions. ○ Regenerative braking and energy recovery. ○ Improved performance and drivability. ○ Positive impact on sustainability and reduction in fossil fuel usage. <p>5. Challenges and Future Directions:</p> <ul style="list-style-type: none"> ○ Technical challenges: Battery longevity, energy density, cost, and weight. ○ Infrastructure challenges: Development of charging stations and impact on the energy grid. ○ Economic and policy challenges: Development costs, government regulations, and incentives. ○ Future trends: Advances in battery technology, renewable energy integration, and autonomous hybrid vehicles. <p>Interactive Activities:</p> <p>1. Q&A Session:</p> <ul style="list-style-type: none"> ○ Dr Vikranth Racherla facilitated an engaging Q&A session, encouraging participants to ask questions throughout the lecture. Queries ranged from the latest advancements in hybrid technology to the environmental impacts and future prospects of HEVs. <p>2. Case Study Analysis:</p> <ul style="list-style-type: none"> ○ A detailed case study on the Ola electric vehicle was presented. Dr. Vikranth Racherla guided the audience through its design, market impact, and technological evolution. Participants were asked to analyse and propose improvements to the case study. <p>3. Live Polling:</p> <ul style="list-style-type: none"> ○ Real-time polling was used to gauge participants' opinions on the future of hybrid technology. The results were discussed, providing insight into current perceptions and potential industry trends.
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Key Takeaways	<ul style="list-style-type: none"> • Integration of Renewable Energy: Emphasizing the importance of integrating renewable energy sources with hybrid powertrains to achieve sustainability goals. • Advancements in Battery Technology: Understanding the critical role of battery technology advancements in improving the efficiency and viability of HEVs. • Diverse Configurations: Appreciating the various configurations of hybrid powertrains and their respective advantages and challenges. • Policy and Infrastructure: Recognizing the need for supportive policies and infrastructure to promote the adoption of hybrid vehicles. • Future Trends: Identifying emerging trends such as autonomous hybrid vehicles and their potential impact on the automotive industry
Follow-up plan	<ol style="list-style-type: none"> 1. Distribution of Lecture Materials: <ul style="list-style-type: none"> ○ Provide participants with access to Dr.Vikranth Racherla's presentation slides and any supplementary materials. 2. Feedback Collection: <ul style="list-style-type: none"> ○ Conduct a survey to gather feedback on the lecture and suggestions for future topics. 3. Research Collaboration: <ul style="list-style-type: none"> ○ Encourage interested students and faculty to reach out to Dr.Vikranth Racherla for potential research collaboration opportunities. 4. Workshops and Seminars: <ul style="list-style-type: none"> ○ Organize follow-up seminars to delve deeper into specific aspects of hybrid electric powertrains, guided by faculty members and industry experts. 5. Publication of Findings: <ul style="list-style-type: none"> ○ Encourage participants to write articles or research papers based on insights gained from the lecture, with the possibility of publication in academic journals or conference proceedings. <p>By implementing this follow-up plan, we aim to sustain the momentum generated by Dr. Vikranth Racherla's lecture and foster continued learning and collaboration in the field of hybrid electric powertrains.</p>

Synopsis of the Activity (Description)

The guest lecture by Dr. Vikranth Racherla on hybrid electric powertrains was highly informative and well-received. Dr. Vikranth Racherla's ability to break down complex concepts and relate them to real-world applications resonated with both students and professionals. The interactive elements, especially the Q&A session and group discussions, fostered a dynamic learning environment.

Dr. Vikranth Racherla's dual roles in railway research and sustainable technology provided a unique and comprehensive perspective on the subject. Participants appreciated his insights into the

technical, economic, and policy challenges of hybrid electric powertrains, as well as his vision for the future of sustainable transportation.

At the end of the lecture, a Google Form quiz was posted, testing the students' understanding of the topics covered. 100 students participated within ten minutes. Students who scored 10 out of 10 on the quiz received chocolates as a reward for their exemplary performance.

The event concluded with a Q&A Session, allowing attendees to engage with Dr. Vikranth Racherla and discuss potential collaborations and research opportunities. Overall, the lecture was a significant success, offering valuable knowledge and inspiring the audience to contribute to the advancement of hybrid electric technology and sustainable practices.

Report prepared by:

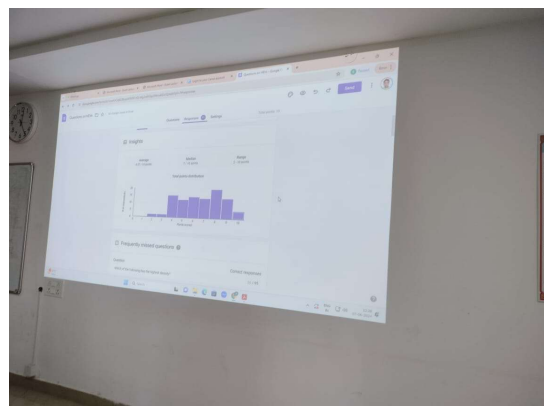
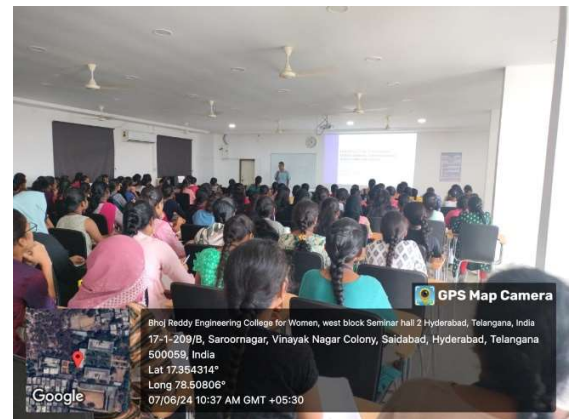
Name of the Organiser	R Manju Bhargavi
Designation/Title	Associate Professor, EEE department
Signature	

R Manju Bhargavi
Coordinator/Convener

S Deepti
HOD

Dr J Madhavi
Principal

Geo-Tag Photos:



Attendance Sheets with student signatures (Scanned Copy)



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Student Acknowledgement for Guest Lecture

"HYBRID ELECTRIC POWERTRIANIS" ON 07 JUNE 2024

S.No	H.T.No	Student's Name	Student Signature
1	23321A0201	Afra Begum	<i>Afra</i>
2	23321A0202	Gainaboina Akshitha	← ABSENT →
3	23321A0203	Merajoth Ankitha	<i>Merajoth</i>
4	23321A0204	CHINMAYEE NEELAM	<i>Chinmayee</i>
5	23321A0205	M.DEEPA	<i>Deepa</i>
6	23321A0206	Messu.Divya Sudha	<i>Divya Sudha</i>
7	23321A0207	Rasula Gayathri	<i>Gayathri</i>
8	23321A0208	Pabbathi Geethasri	<i>P. Geethasri</i>
9	23321A0209	Dapkal godhavari	<i>Godhavari</i>
10	23321A0210	APPALA HARIKA	← ABSENT →
11	23321A0211	Gilakathula Harika	<i>Harika</i>
12	23321A0212	Vadla kalavathi	<i>Kalavathi</i>
13	23321A0213	K.Manasa	<i>Manasa</i>
14	23321A0214	Manasa.o	<i>Manasa</i>
15	23321A0215	Manasa yerukula	<i>Manasa</i>
16	23321A0216	Md sana sujan	<i>Sana sujan</i>
17	23321A0217	Jadala Nandini	← ABSENT →
18	23321A0218	Mainampati Nandini	<i>Nandini</i>
19	23321A0219	L.NAVYA SRI	<i>Navya Sri</i>
20	23321A0220	B.pooja	<i>Pooja</i>
21	23321A0221	Madanaboina Pooja	<i>M. Pooja</i>
22	23321A0222	Reshma begum	← ABSENT →
23	23321A0223	J.Rupa	<i>Rupa</i>
24	23321A0224	M.Sai Preksha	<i>Sai Preksha</i>

S.No	H.T.No	Student name	Student Signature
25	23321A0225	M.sai priya	Sai priya.
26	23321A0226	BADAVATH SALOMI	salomi
27	23321A0227	Gaddam Sanithya	Sanithya
28	23321A0228	K. Sathvikoreddy	Sathvika
29	23321A0229	Sirisree nagoju	Sirisree
30	23321A0230	H.Smithagna	Smithagna
31	23321A0231	B.Sreeja Reddy	B.Sreeja
32	23321A0232	DHARAVATH SRILAXMI	D.Srilaxmi
33	23321A0233	Kondarapu srilaxmi	K.Srilaxmi
34	23321A0234	Uppala Srinidhi	U.Srinidhi
35	23321A0235	Vaishnavi.K	Vaishnavi
36	23321A0236	Munagapativaishnavi	m.vaishnavi
37	23321A0237	Vudigiri vaishnavi	V.Vaish

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S.No	H.T.No	Student's Name	Student Signature
1	22321A0201	Akhila Errabelli	E. Akhila
2	22321A0202	Akshitha Reddy Parpatakam	P. Akshitha Reddy
3	22321A0203	Anusha Kanugula	Anusha
4	22321A0204	Deepthi Reddy Sangi Reddy	Deepthi
5	22321A0205	Haripriya Avula	Haripriya
6	22321A0206	Harshitha Yamjala	Harshitha
7	22321A0207	Jyothsna Korra	Jyothsna
8	22321A0208	Mehak Vagalaboina	Mehak
9	22321A0209	Moumita Nath	Moumita Nath
10	22321A0210	Mounika Thudimilla	Mounika
11	22321A0211	Navaneetha Sarangula	Navaneetha
12	22321A0212	Nishitha Adugani	Nishitha
13	22321A0213	Poojitha Surigi	Poojitha
14	22321A0214	Pranitha Vangaveeti	V. Pranitha
15	22321A0215	Pravalika Kantekar	Pravalika
16	22321A0216	Pravalika Lankala	← ABSENT →
17	22321A0217	Rajeshwari Shanigaram	Rajeshwari
18	22321A0218	Ramya Sree Ambati	← ABSENT →
19	22321A0219	Rishitha Erasani	E. Rishitha
20	22321A0220	Sai Abhignya Japala	Sai Abhignya
21	22321A0221	Sai Geetha Male	M. Geetha
22	22321A0222	Shruthi Katam	K. Shruthi
23	22321A0223	Sindhu Gaddam	S. Sindhu
24	22321A0224	Spandhana Kaki	K. Spandhana
25	22321A0225	Sree Ratna Sama	S. Ratna
26	22321A0226	Sri Harika Rangam	S. Harika

27	22321A0227	Srishanthi Komatireddy	K. Srishanthi
28	22321A0228	Sriya Deepthi Jella	← ABSENT →
29	22321A0229	Syeda Sana Fatima	<i>Syeda Sana</i>
30	22321A0230	Tejasri Mediga	← ABSENT →
31	22321A0231	Tejasri Mogili	M. Tejasri
32	22321A0232	Thulasi Batharaju	B. Thulasi
33	22321A0233	Varsha Gogikar	Varsha
34	22321A0234	Yashaswini Pulkam	P. Yashaswini
35	23325A0201	Ankitha Chalamala	CH. Ankitha.
36	23325A0202	Dhanyatha R	← ABSENT →
37	23325A0203	Harshitha Koukuntla	K. Harshitha
38	23325A0204	Hemalatha A	← ABSENT →
39	23325A0205	Humera Nazeer	<i>Humera</i>
40	23325A0206	Lakshanya Kashipeta	← ABSENT →
41	23325A0207	Lohitha Pendli	← ABSENT →
42	23325A0208	Madhuri M	M. Madhuri
43	23325A0209	Mounika Poosaju	← ABSENT →
44	23325A0210	Navya K	K. Navya
45	23325A0211	Ruchitha Mamunuri	M. Ruchitha
46	23325A0212	Sai Sowjanya Gorle	G. Sai Sowjanya
47	23325A0213	Shivani Peddammala	P. Shivani
48	23325A0214	Sneha Reddy Yasa	Y. Sneha
49	23325A0215	Sravani Deekuntla	D. Sravani
50	23325A0216	Sreeja Shanigarapu	← ABSENT →
51	23325A0217	Srivinaya Kalla	Srivinaya
52	23325A0218	Sushma Sri Pathem	P. Sushma
53	23325A0219	Urmila Jakkula	J. Urmila
54	23325A0220	Vandana Thipparaju	T. Vandana
55	23325A0221	Veena Rathlavath	R. Veena
56	23325A0222	Vineetha Challa	Ch. Vineetha
57	21321A0206	Fatima Begum	Fatima Begum

M. Nazeer
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S.No	H.T.No	Student's Name	Student Signature
1	21321A0201	Abhinaya Avula	← ABSENT →
2	21321A0202	Akshaya Buduru	← ABSENT →
3	21321A0203	Ashwini Badepally	B. Ashwini
4	21321A0204	Ashwitha Reddy Appamagari	← ABSENT →
5	21321A0205	Bhavya Godumagadda	G. Bhavya.
6	21321A0207	Gnaneshwari Siliveru	G. Gnaneshwari.
7	21321A0208	Harika P	Harika.P
8	21321A0209	Kavya Vade	Kavya
9	21321A0210	Lahari Golla	G. Lahari
10	21321A0211	Mani Deepika Alishetti	A. Mani Deepika.
11	21321A0212	Mounika Golla	G. Mounika.
12	21321A0213	Nandhini M	← ABSENT →
13	21321A0214	Naveena U	← ABSENT →
14	21321A0215	Pallavi Duggirala	D. Pallavi
15	21321A0216	Pavani Gottiparthi	Pavani
16	21321A0217	Praneetha Ganji	← ABSENT →
17	21321A0218	Pranitha B	Pranitha
18	21321A0219	Prasanna Reddy Mandha	M. Prasanna Reddy.
19	21321A0220	Priyanka Nayini	N. Priyanka
20	21321A0221	Punarvi Rochisha Ketha	← ABSENT →
21	21321A0222	Rakshitha Seethammagari	S. Rakshitha
22	21321A0223	Reshma Gandikota	G. Reshma.
23	21321A0224	Sagarika Gadikoppula	G. Sagarika
24	21321A0225	Sahithi Adepu	A. Sahithi

	H.T.No	Student's Name	Student Signature
25	21321A0226	Sani Azeem	Kani
26	21321A0227	Sanjana S	Sanjana
27	21321A0228	Shreya Gummadavelli	G. Shreya
28	21321A0229	Shruthi Kotha	K. Shruthi
29	21321A0230	Siri Chandana Gadarla	Siri Chandana
30	21321A0231	Smrithi Manchala	M. Smrithi
31	21321A0232	Sowmya A	← ABSENT →
32	21321A0233	Srija Pallati	Srija
33	21321A0234	Tanvika Bejugam	Tanvika
34	21321A0235	Usha Kandukuri	K. Usha
35	21321A0236	Vasumathi Polepaka	P. Vasumathi
36	21321A0237	Vijayalaxmi Kambalapalli	K. Vijaya
37	21321A0238	Vishali Bachhu	B. Vishali
38	22325A0201	Farha Anjum	Farha
39	22325A0202	Geervani Magilipally	Geervani
40	22325A0203	Jyothi Achanola	A. Jyothi
41	22325A0204	Laxmi Prasanna Marka	Laxmi
42	22325A0205	Nandini R	Nandini
43	22325A0206	Pooja Santhapuri	← ABSENT →
44	22325A0207	Poojitha Aleti	P. Poojitha
45	22325A0208	Poojitha Padala	P. Poojitha
46	22325A0209	Sai Srija Arelli	← ABSENT →
47	22325A0210	Shivani Pattam	P. Shivani
48	22325A0211	Siri Chandana M	Siri
49	22325A0212	Sowbhagya K	Sowbhagya

M. Jyoti
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