VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd. u/s 3 of UGC Act 1956

Department of Electrical and Electronics Engineering

Date: 16.11.2023

Minutes of Board of Studies Meeting

Board of Studies (BoS) meeting of M.Tech., Electric Vehicle Technology program was conducted on 16.11.2023 in virtual mode from 10.30am to 1.00pm.

All the internal members of VFSTR attended the meeting in person while all the external members participated the meeting virtually with link:

Zoom Link:

https://us06web.zoom.us/j/81486134146?pwd=OWMwa2lNWjFETmYwNW5vam1SbzRZQT09

Agenda of the BoS Meeting:

1. To discuss and finalize the curriculum structure and detailed syllabus of M.Tech., EVT program.
2. To approve the curriculum and syllabus of M.Tech., EVT Program and recommend to the Academic council.
3. Any other points with the permission of Chairperson.

The following members were present either thorough offline or online.

Sl.	Name of the Faculty	Designation & Addresses	Position
1	Dr. Polamraju V.S. Sobhan	Assoc. Professor &HoD	Chairperson
2	Dr. K. Mercy Rosalina	Professor	Member
3	Dr. M. Umamaheswara Rao	Asst. Professor	Member Secretary
4	Dr. G. Srinivasa Rao	Professor & Dean R&D	Member
5	Dr. M. Subba Rao	Assoc. Professor	Member
6	Dr. K. Balakrishna	Assoc. Professor.	Member
7	Dr. A.R. Vijay Babu	Assoc. Professor	Member
8	Dr. Jithendranath J.	*Senior Project Engineer,* Hitachi Energy Technology Services P Ltd · Grid and Power Quality Solution, Chennai – 600089, Tamil Nadu **Mobile:** +91-9949537586 **Email:**jithendranath.j@hitachienergy.com	Member
9	Dr. B. Satish Babu	Sr. Staff Engineer, Sr. Staff Engineer, Infineon Technologies, Bangalore, **Phone:** 9958006750 **Email:**satishbabu.bhogineni@infineon.com	Special Invitee
10	Dr. M. Sarada	Professor, Department of ECE, VFSTR University	School Dean Nominee

In the beginning of the meeting the Chairperson of the BoS, Dr. Polamraju V.S. Sobhan, Associate Professor and Head, department of EEE welcomed all the members and briefed them about the progress of the Department.

Chairperson presented about the new M.Tech. Electric Vehicle Technology program.

The BoS members expressed their highly appreciation and satisfaction about
- the reduction in total credits
- Module wise course syllabus

The following points were discussed in the BoS meeting:
1. R22 M.Tech. EVT curriculum structure with credits, credits distribution.
2. 2 Modules instead of 5 units.
3. Assessment methods (Formative & Summative).
4. Electives.

The following are the views expressed by the external members

Dr. Jithendranath J
- Appreciated introduction of M.Tech, EVT program.
- Suggested to include Drive cycles and Sizing of components of EVs in Unit-II of Module-I in Hybrid and Electric Vehicles course.
- Appreciated the PLC and DSP based Control of Drives concept in electrical drives for EV course.
- Suggested to change Module-2 as Module-1 and vice-versa Smart Grid Interface of EV course.

Dr. B. Satish Babu
- Suggested to include basic converter topologies in UNIT-I of Module-I in Switching Power Supplies course.
- Advised to introduce wireless communication module in intelligent transport system course.
- Advised to introduce V2V, VI, V2X communication concepts in electric vehicle sensors technology course.
- Suggested to introduce Radar Sensor Detectors for vehicle safety concepts in IoT course.
- Suggested to introduce the Machine learning course for electric vehicles.

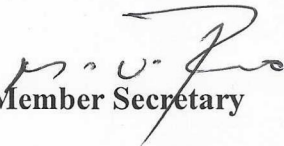All the external BoS members appreciated
- The reduction in total credits
- Module wise course syllabus
- Add on certification courses
- Teaching Assistantship

The following resolutions made after the discussion:

- BoS Members approved the curriculum structure, syllabus of M.Tech.,EVT programme and it follows based on the NEP 2020. Curriculum structure is provided in Appendix-A.

- The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development, provided in Appendix- B.

- The significant changes are made in the content of all courses and hence the courses are considered as new courses provided in Appendix- C.

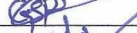- Total average percentage of syllabus revised was 100 %.
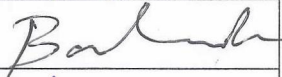
Based on the suggestions given by the members, the Chairperson of BoS told that, those fruitful suggestions would be incorporated appropriately in the curriculum and this will be recommended to the Academic Council of VFSTR for the approval.

There being no further points for discussion, the Chairperson thanks all the external, internal, invited members and announced that the meeting was adjourned.

Member Secretary

Chairperson

The following are the members present for the board of studies meeting held at Department of Electrical and Electronics Engineering on 16-11-2023

Sl. No.	Name of the Member	Designation	Signature
External Members:			
1.	Dr. Jithendranath J.	*Senior Project Engineer,* Hitachi Energy Technology Services P Ltd · Grid and Power Quality Solutions Chennai – 600089, Tamil Nadu **Mobile:** +91-9949537586 **Email** :jithendranath.j@hitachienergy.com	Participated the meeting virtually
2.	Dr. B. Satish Babu	Sr. Staff Engineer, Infineon Technologies, Bangalore, **Phone:** 9958006750	
Internal Members:			
1	Dr. Polamraju V.S. Sobhan	Associate Professor, &HoD, Dept. of EEE, VFSTR	
12	Dr. G. Srinivasa Rao	Professor, Dept. of EEE, VFSTR	
2.	Dr. K. Mercy Rosalina	Professor, Dept. of EEE, VFSTR	
4.	Dr. M. Subba Rao	Associate Professor, Dept. of EEE, VFSTR	
5.	Dr. K. Balakrishna	Associate Professor, Dept. of EEE, VFSTR	
6	Dr. A.R. Vijay Babu	Associate Professor, Dept. of EEE, VFSTR	

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
Estd. u/s 3 of UGC Act 1956

Department of Electrical and Electronics Engineering

APPENDIX - A
M.Tech. EVT Programme: Curriculum Structure
I Year - I Semester

S. No.	Course Title	L	T	P	C
1	Power Electronic Converters	2	2	2	4
2	EV Motor Drives and Control	2	2	2	4
3	Hybrid And Electric Vehicles	2	2	2	4
4	Department Elective – 1	2	-	2	3
5	Department Elective – 2	2	-	2	3
6	Cyber security	1	2	-	2
7	Employment Orientation Program	-	2	2	2
	Grand Total	11	10	12	22
		33			22

I Year - II Semester

S. No.	Course Title	L	T	P	C
1	EV Charging Infrastructure and Analysis	2	2	2	4
2	Energy Storage and Management System	2	2	2	4
3	Department Elective – 3	2	-	2	3
4	Department Elective – 4	2	-	2	3
5	Research Methodology & IPR		2		2
6	Interdepartmental project	-	1	3	2
7	Teaching assistantship	-	-	4	2
	Total				20
8	Add-on certification course -1	3	-	2	4
	Grand Total	11	7	17	24
		35			24

II Year - I Semester

S. No.	Course Title	L	T	P	C
1	Project / Internship	-	2	24	13
2	Add-on certification course -2 (MOOCs / Self-Study Course)	4	-	-	4
	Grand Total	4	2	24	17

II Year - II Semester

S. No.	Course Title	L	T	P	C
1	Project / Internship	-	2	24	13
2	Add-on certification course -3 (MOOCs / Self-Study Course)	4	-	-	4
	Grand Total	4	2	24	17

Department Electives Courses

Sl. No.	Course Title-Department Electives	L	T	P	C
1	Modelling and Simulation of EHV	2	-	2	3
2	Intelligent Transport Systems	2	-	2	3
3	Sensors for EV system	2	-	2	3
4	Electric Vehicle System Engineering and Policy	2	-	2	3
5	Introduction to Vehicle Dynamics	2	-	2	3
6	Embedded System Design	2	-	2	3
7	Industrial Internet of Things	2	-	2	3
8	Advanced Control Systems for EV	2	-	2	3
9	Switching Power Supplies	2	-	2	3
10	Control Techniques for EV Converters	2	-	2	3
11	Energy Conversion Systems for EV	2	-	2	3
12	Automotive Safety	2	-	2	3
13	Smart Grid Interface of EV	2	-	2	3
14	Machine Learning Techniques for Electric Vehicles	2	-	2	3

Chairperson

APPENDIX - B

List of Courses that Enables Employability or Entrepreneurship or Skill Development

S. No.	Year and Semester	Course Title	Employability / Entrepreneurship / Skill development
1	I Year I Semester	Power Electronic Converters	Skill development
2	I Year I Semester	EV Motor Drives and Control	Skill development
3	I Year I Semester	Hybrid And Electric Vehicles	Skill development
4	I Year I Semester	Cyber Security	Skill development
5	I Year I Semester	Employment Orientation Program	Employability
6	I Year II Semester	EV Charging Infrastructure and Analysis	Employability
7	I Year II Semester	Energy Storage and Management System	Skill development
8	I Year II Semester	Research Methodology & IPR	Skill development
9	I Year II Semester	Interdepartmental Project	Employability
10	I Year II Semester	Teaching Assistantship	Employability
11	II Year	Project	Employability
12	II Year	Internship	Employability
13	Department Electives	Modelling and Simulation of EHV	Entrepreneurship
14	Department Electives	Intelligent Transport Systems	Skill development
15	Department Electives	Sensors for EV system	Skill development
16	Department Electives	Electric Vehicle System Engineering and Policy	Entrepreneurship
17	Department Electives	Introduction to Vehicle Dynamics	Skill development
18	Department Electives	Embedded System Design	Skill development
19	Department Electives	Industrial Internet of Things	Employability
20	Department Electives	Advanced Control Systems for EV	Skill development
21	Department Electives	Switching Power Supplies	Entrepreneurship
22	Department Electives	Control Techniques for EV Converters	Employability
23	Department Electives	Energy Conversion Systems for EV	Employability
24	Department Electives	Automotive Safety	Skill development
25	Department Electives	Smart Grid Interface of EV	Entrepreneurship
26	Department Electives	Machine Learning Techniques for Electric Vehicles	Employability

Chairperson

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
·Estd. u/s 3 of UGC Act 1956

Department of Electrical and Electronics Engineering

APPENDIX - C
List of New Courses in the R22 M.Tech EVT Curriculum

S. No.	Year and Semester	Course Title
1	I Year I Semester	Power Electronic Converters
2	I Year I Semester	EV Motor Drives and Control
3	I Year I Semester	Hybrid And Electric Vehicles
4	I Year I Semester	Cyber Security
5	I Year I Semester	Employment Orientation Program
6	I Year II Semester	EV Charging Infrastructure and Analysis
7	I Year II Semester	Energy Storage and Management System
8	I Year II Semester	Research Methodology & IPR
9	I Year II Semester	Interdepartmental Project
10	I Year II Semester	Teaching Assistantship
11	II Year	Project
12	II Year	Internship
13	Department Electives	Modelling and Simulation of EHV
14	Department Electives	Intelligent Transport Systems
15	Department Electives	Sensors for EV system
16	Department Electives	Electric Vehicle System Engineering and Policy
17	Department Electives	Introduction to Vehicle Dynamics
18	Department Electives	Embedded System Design
19	Department Electives	Industrial Internet of Things
20	Department Electives	Advanced Control Systems for EV
21	Department Electives	Switching Power Supplies
22	Department Electives	Control Techniques for EV Converters
23	Department Electives	Energy Conversion Systems for EV
24	Department Electives	Automotive Safety
25	Department Electives	Smart Grid Interface of EV
26	Department Electives	Machine Learning Techniques for Electric Vehicles

Chairperson

Department of Electrical and Electronics Engineering

APPENDIX - D
List of New Courses in the R22 M.Tech EVT Curriculum

Sl.	Year and Semester	Course Title	Employability / Entrepreneurship / Skill development
1	I Year I Semester	Power Electronic Converters	100%
2	I Year I Semester	EV Motor Drives and Control	100%
3	I Year I Semester	Hybrid And Electric Vehicles	100%
4	I Year I Semester	Cyber Security	100%
5	I Year I Semester	Employment Orientation Program	100%
6	I Year II Semester	EV Charging Infrastructure and Analysis	100%
7	I Year II Semester	Energy Storage and Management System	100%
8	I Year II Semester	Research Methodology & IPR	100%
9	I Year II Semester	Interdepartmental Project	100%
10	I Year II Semester	Teaching Assistantship	100%
11	II Year	Project	100%
12	II Year	Internship	100%
13	Department Electives	Modelling and Simulation of EHV	100%
14	Department Electives	Intelligent Transport Systems	100%
15	Department Electives	Sensors for EV system	100%
16	Department Electives	Electric Vehicle System Engineering and Policy	100%
17	Department Electives	Introduction to Vehicle Dynamics	100%
18	Department Electives	Embedded System Design	100%
19	Department Electives	Industrial Internet of Things	100%
20	Department Electives	Advanced Control Systems for EV	100%
21	Department Electives	Switching Power Supplies	100%
22	Department Electives	Control Techniques for EV Converters	100%
23	Department Electives	Energy Conversion Systems for EV	100%
24	Department Electives	Automotive Safety	100%
25	Department Electives	Smart Grid Interface of EV	100%
26	Department Electives	Machine Learning Techniques for Electric Vehicles	100%

Chairperson