Department of Engineering Design
Indian Institute of Technology Madras
Branch Code: ED
Credit Requirements for M.Tech. in Electric Vehicles (MEV)

Course Curriculum Semester Wise:

Semester1

S. No.	Course No.	Course Name	L	T	E	P	O	C
1	EDXXXX	Foundations to Electric Vehicle Technology	3	0	0	0	6	9
2	ED5235	Power Electronics and Motor Drives for Electrified Vehicles	3	0	0	0	6	9
3	EDXXXX	Energy Storage and Conversion Systems	3	0	0	0	6	9
4	ED5023	Power Converter Design for Electrified Vehicles	3	0	0	0	6	9
5	EDXXXX	E-mobility Lab – 1	0	0	0	3	0	3
6		Elective 1**						**
7	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		Total						39**

Semester2

S. No.	Course No.	Course Name	L	T	E	P	O	C
1	ED5220	Vehicle Dynamics	3	0	0	3	6	12
2	ED5516	Design and Control of AC Machines for Electrified Vehicles	3	0	0	0	6	9
3	ED5021	Battery Charging Technology	3	0	0	3	6	12
4	EDXXXX	E-Mobility Lab - 2	0	0	0	6	0	6
5		Elective 2**						**
6		Elective 3**						**
		Total						39**

Summer

S. No.	Course No.	Course Name	L	T	E	P	O	C
1	ED5BBB	Summer Project/ Internship (optional)						0

Semester3

S. No.	Course No.	Course Name	L	T	E	P	O	C
2	ED5CCC	Project I#						40

Semester4

S. No.	Course No.	Course Name	L	T	E	P	O	C
3	ED5DDD	Project II#						45

Semester	I	II	Summer	III	IV	Total
Credits	39**	39**	0	40	45	190

Indicated credits are only for the core programme. In addition, a minimum of 27 elective credits must be credited from the list of electives listed below.

** The semester-wise breakup of the electives is just for preliminary guidance. The students are advised to consult the faculty advisor to decide on the number of electives to be taken in each of the three semesters.

One of the project guides should be from the Department of Engineering Design

The M.Tech project is split into two phases --- Project Phase-1 carrying 40 credits (to be carried out usually over the odd semester, named Project I), and Project Phase-2 carrying 45 credits (to be carried out in the even semester, and named Project II).

Project Phase-1 is mandated for all students. On the other hand, Project Phase 2, which is the continuation of Phase 1, can be pursued only if the evaluation committee approves it.

At the end of Project Phase-1, the student should submit a report and make a presentation. The committee will then recommend whether or not the student is eligible to pursue Project Phase 2. If the student is not found eligible, additional coursework from the list of electives has to be done to meet the total credit requirements for obtaining the M.Tech degree.

LIST OF ELECTIVES

		L	T	E	P	O	C
ED5340	Data Science: Theory and Practice	3	0	0	3	6	12
ED5330	Control of Automotive Systems	3	0	0	0	6	9
ED5160	Fundamentals of Automotive Systems	3	0	0	3	6	12
ED5515	Fundamentals of Thermal Management in Electric Vehicles	3	0	0	0	6	9
ID5020 / ME5233	Multi-Body Dynamics and Applications	3	0	0	0	6	9
EE5201	Modelling and Analysis of Electric Machines	3	0	0	0	6	9
EE5203	Switched Mode Power Conversion	3	0	0	0	6	9
EE6262	Advanced Motor Control	3	0	0	0	6	9
ID5500	Battery Technology	3	0	0	0	6	9
ME5306	Introduction to Autonomous Vehicles	3	0	0	0	6	9
ED5350	Electric Vehicle Engineering and Development	3	0	0	0	6	9
EE5212	Digital Controller for Power Applications	3	0	0	0	6	9
ED5014	Energy Storage Devices and Systems	3	0	0	0	6	9
ED5345	Powertrain and Fuels	3	0	0	0	6	9
ED5080	Mechatronics System Design	3	0	0	0	6	9

ED5017	Digital Signal Processing for Engineering Design	3	1	0	0	6	10
ED5052	Electromagnetic Compatibility for Engineering Design	3	0	0	3	6	12
EE5262	Distributed Generation and Microgrid Systems	3	0	0	0	6	9
CS5410	Security in Cyber-Physical System	4	0	0	0	8	12
CE5900	Intelligent Transportation Systems	3	0	0	0	6	9
EDXXXX	Directed Studies on Research Topics	0	0	0	0	9	9