

## **Web Enabled M.Tech in E-Mobility (WEMEM)**

### **About WEMEM**

#### **Need for an MTech in Emobility**

The transportation sector is undergoing a paradigm transition towards a Sustainable future, for which E-Mobility is an important enabler. While the initial 're-birth' of Electric Vehicles (EVs) has been driven by cars, there is rapid electrification of 2-wheelers, 3-wheelers, and commercial vehicles. To ensure good quantity and quality of well-trained manpower to drive this transition, it is imperative that working professionals undergo skilling in the domain of e-Mobility. This would ensure that they would be well trained in the entire ecosystem in addition to the technical aspects of EVs and their aggregates.

#### **Why is IITM well suited to offer the MTech in Emobility?**

The Indian Institute of Technology Madras (IITM) envisions to be a global leader in contributing to this transition through human resource development amongst other initiatives.

- IITM started an Interdisciplinary Dual Degree (IDDD) Master's programme in Electric Vehicles for its students in the year 2022.
- In the same year, a 6-month Certificate Programme on E-Mobility (CPoEM) was launched for Working Professionals with about 300 participants over 4 Cohorts. The contents of these programmes have been evolved with continuous feedback from the industry to ensure Academic Rigour and Industry Application.

These programmes have led to the formation of a core group of inter-departmental faculty in eMobility consisting of full-time IITM faculty, Professors of Practice (PoPs), Adjunct Faculty and Guest Faculty. The Department of Engineering Design (ED) has organically emerged as the Nodal Department in these initiatives and is now offering the Web-Enabled MTech in E-Mobility (WEMEM).

#### **Structure of the MTech program in Emobility**

WEMEM is structured to offer the appropriate flexibility to Working Professionals while maintaining the required academic rigor of a degree programme from IITM.

- Participants need to complete 190 academic credits to earn a Master's degree.
- These include 105 of course work (includes theory and lab courses along with a mini project) and 85 credits of project work.
- There are 3 terms in a year - January, May and September. Each term would include 12 weeks of course work followed by the final examination.
- In a "term", up to 2 theory courses would be offered in parallel. Considering their work-related commitments on weekdays, the participants would need to attend live classes with faculty every Saturday.
- Teaching Assistants (TAs) would be available continuously during the course duration to clarify doubts through the corresponding forum.
- The evaluation for each course would be through regular assignments, projects (as required), quizzes or mid-term exam, and a final exam.

# Project

## **Mini Project**

The Mini Project may be done at the company where the learner is working or elsewhere with due approvals from the relevant IITM Faculty Guide prior to starting it. The project description will have to be evolved by the learner, reviewed with the IITM Faculty Guide the learner has chosen and approved by the IITM Faculty Guide prior to starting the project.

The Project Title and scope must be approved earliest by the end of the previous semester/term (Semester/Term 4), so that the project can start right from the beginning of Semester/Term 5.

To qualify for the Mini Project, the learner should have passed all the Core theory courses taken till Semester/Term 4.

## **Project for WEMEM (85 Credits)**

Otherwise referred to as the “Main Project or Major Project”, this Project must be done at the company where the learner is working with due approvals from the relevant IITM Faculty Guide. The project description will have to be evolved by the learner, reviewed with the IITM Faculty Guide the learner has chosen and approved by the IITM Faculty Guide prior to starting the project.

The Project Title and scope must be approved earliest by the end of the previous semester/term (Semester/Term 5), so that the project can start right from the beginning of Semester/Term 6.

To qualify for this Major Project, the learner should have successfully completed the Mini Project and the E-Mobility lab. This project is divided into Project I and Project II to enable completion over 2 semesters/terms.

It is important to note that the company where the learner is employed should support them in their projects leading to a MTech so that the learner can propose, formulate, and carry out these projects in their company. The role of IITM Faculty Guide would be only to advise the learner in the projects. The evaluation of the Mini Project and the Main Project would be done by IIT Madras.

## **Intermediate exit for those who do not proceed to complete the Major Project**

A Post Graduate Diploma in E-Mobility (PGDEM) is an alternate earlier exit point for a learner. To qualify for this, a learner should have successfully completed all 6 Core courses (54 Credits), 3 Electives (27 Credits) and the Mini Project (12 Credits) totaling 93 Credits.

### Campus visits:

- **Optional:** Visits to the IITM campus would be facilitated in the first 6 months in case students are interested to come and interact with the faculty and network with their peers. This is optional.
- **Mandatory:** Participants in the MTech program are required to come to IITM for the eMobility lab course.

The travel and accommodation costs for the above visits will be borne by the participants.

## Modes of Admission

### For getting approval to pursue the MTech degree:

#### **1. MoU between IIT Madras and companies**

A company can sponsor/nominate their employees for admission to this program. In this case, an Memorandum of Understanding (MoU) would be signed with the company. The company may

- a. pay the fee for all candidates and sponsor them
- b. or just nominate them and employees pay the fee on their own.

As part of the MoU, the company should also agree to permit them to carry out their projects in the company and provide senior employees who will be the guides for the final projects.

#### **2. If IITM does not have an MoU with the company:**

Applicants who are working professionals can also pay the fees themselves and come into the program. In order to pursue the MTech, the applicant should submit

- a. a No-Objection Certificate (NOC) from their company
- b. a letter of support from their company that states that the company will facilitate project guides for these students and permit them to carry out their project work within the company.

### For enrolling and studying in the PG Diploma:

Any working professional who satisfies the eligibility of the UG degree and work experience can apply to study in the PG Diploma program. No documents are required in this case apart from qualifying in the "Selection test" to enter the program.

Once they complete the course work and mini project and become eligible for the PG diploma, if they want to proceed with the main project in order to get the MTech degree, they can provide the NOC and Letter of support from the company they work in at this time and if IITM approves, continue with the MTech requirements.

## Course Pattern and Evaluation

- Participants would attend live classes with faculty every Saturday.
- The faculty and Teaching Assistants (TAs) would be available through a discussion forum to answer queries during the duration of a course.

- Participants would be given regular assignments to help them better understand the concepts learnt.
- Two quizzes or a midterm exam, and a final exam would be conducted for each theory course. The grading pattern of the course would be finalised and announced when course registrations are being done. The mode of exams would be a combination of online-remote proctored or in-person at centres in more than 200 cities across the country.

## International students

Students outside India can also participate in these programs and study in it. Exams will be facilitated for those outside India. Such students will have to come to India for completing the lab course alone.

## Academic calendar:

Important dates for the admission exam and first term are:

Last date to receive applications: May 26 2024

Date of Admission test: July 7 2024

Date of release of results and selection list: July 21 2024

Date within which to accept and register to the program: 10 August 2024

Start date of Term 1: 20 September 2024, Friday

Final exam date: 22 December 2024, Sunday

## Duration of the program:

A candidate should complete a PG Diploma within 3 years of the date of registration. The corresponding period for MTech is 6 years.

If a candidate decides to upgrade from PG Diploma to MTech after due process and approvals, they need to complete MTech within 6 years of the date of registration to the PG Diploma. In such an instance, they would not be awarded a PG Diploma unless they decide to discontinue their MTech requirements later.

Degree certificate would be identical to that awarded to regular students resident at IITM.

## Number of students who will be admitted:

There is no limit on the number of students who will be admitted to this program. All those who qualify and become eligible in the admission test can join the program.