Executive Mtech in Advanced Electrical Vehicle System

Where Knowledge Meets Innovation - Empower Dreams, Engineer Success

2 Years I Online Immersive Sessions I Graduate from an IIT

Tech Leadership Redefined - IIT Bhilai's Executive MTech Journey

Indian Institute of Technology (IIT) Bhilai was established in the state of Chhattisgarh by the Ministry of Education in the year 2016.

IIT Bhilai is presently housed in its permanent campus at Kutelabhata, Bhilai, Chhattisgarh.

At IIT Bhilai, we understand the demands of the dynamic corporate landscape, and our Executive MTech programs are meticulously crafted to provide a seamless blend of academic excellence and real-world applicability. Whether you aspire to advance in your current role, switch career paths, or stay ahead of industry trends, our Executive MTech courses offer the strategic edge you need to thrive in a competitive landscape.

Program Overview

The M.Tech. Executive in Advanced Electrical Vehicle Systems at IIT Bhilai is designed for professionals aiming to gain expertise in electric vehicle (EV) technology, sustainable energy solutions, and advanced power systems. This interdisciplinary program focuses on key areas such as EV battery technology, power electronics, renewable energy integration, and the sustainability of electric transportation systems.

The curriculum blends online coursework, electives, and hands-on project-based learning to equip participants with the skills needed to design, develop, and optimize EV systems. Graduates of this program will be prepared for leadership roles in the EV industry, renewable energy sector, and associated domains.

- Min 2 years of Experience within preceding 5 Years
- Should have B.Tech/ BE/ M.Tech/ MSc (In Relevant Field- 4 Semester Program) / MCA (4 Semester Program) / MS Degree (min. 4 Semester Program).
- In the qualifying degree at least 55 percent marks or equivalent 5.5 CGPA/CPI must be there. In case of the candidate belonging to SC, ST, or Persons with Disability (PwD) category, this is relaxed to 50% or equivalent 5.0 CGPA/CPI. For MCA/MSC passed graduates, the percentage score of MCA/MSC would be considered. For BE/BTech Engineering graduates without PG specialization, the percentage score of the undergraduate degree would be considered. For a post graduation in the Engineering field of study, PG score qualification can be considered.
- Selection process will be scheduled post counseling & application process, depending on the number of eligible applications as per seat availability for the program. This entire process will be online.

Who Is this Program For?

- Engineers and software developers seeking a profound understanding of advanced electric vehicle systems will discover this program to be invaluable for refining their expertise.
- This program is also well-suited for entrepreneurs, innovators, and tech enthusiasts who are eager to master the intricacies of Advanced Electrical Vehicle Systems.
- The Executive MTech in Advanced Electrical Vehicle Systems is designed to meet the needs of individuals who are enthusiastic about advancing their careers and making a significant impact in the digital age, particularly within the rapidly evolving landscape of electric mobility.

DURATION

The nominal duration of the Executive M.Tech. program will be 2 calendar years / 4 semesters (online).

The nominal duration of the Executive M.Tech. program with an equivalency to the regular M.Tech. will be a 5 semesters (3 online, 2 offline). Please contact IIT Bhilai for further details.

PROGRAM EQUIVALENCY

This is an online Executive M.Tech. degree program, which is not equivalent to the regular M.Tech programs of IIT Bhilai. To get a degree equivalent to a regular M.Tech, the student has to opt for 26 credits offline thesis (at IIT Bhilai) after the 3 rd semester. The offline thesis will be for two semesters (semester 4 and semester 5). The selection for the equivalency program will be based on qualifying the mandatory offline written exam and an interaction conducted by IIT Bhilai.

PROGRAM STRUCTURE

- Total Credits: 40
- Core Courses: 12-13 Credits
- Elective Courses: 13-14 Credits (if the Campus immersion is opted), otherwise 15-16 credits.
- Campus Immersion Program: 2 Credits (optional)
- Project: 12 Credits (in 4th Semester)

PROGRAM OBJECTIVES

- *Build a strong foundation in the principles of electric vehicle systems, including energy storage and power systems.*
- *Gain expertise in battery technologies, charging systems, and renewable energy integration for EVs.*
- *Develop skills to design and optimize power electronics and control systems for electric vehicles.*
- *Understand the sustainability and environmental impact of EV systems and integrate sustainable solutions.*
- *Foster innovation in EV design, testing, and business models to support the global transition to electric mobility.*
- *Cultivate leadership and teamwork skills for managing multidisciplinary EV projects in a professional setting.*

PROGRAM HIGHLIGHTS

- An esteemed certification, campus immersion & alumni status from IIT Bhilai
- Learn through Virtual Instructor-Led Training (VILT)
- Explore top-notch learning with industry experts

PROGRAM CURRICULUM

Semester - I

Course Code	Course Name	L	T	P	C	Category
EV01	Fundamentals of Electric Vehicles	3	0	0	3	Core Course
EV02	Energy Storage and Conversion	3	0	0	3	Core Course
EV03	Electric Drives and Control	3	0	0	3	Core Course

Semester - I - Total Credits - 9

Semester - II

Course Code	Course Name	L	T	P	C	Category
EV04	Battery Technology and Manufacturing	3	0	0	3	Core Course
EVEXX	Electives in Power Systems & Electronics	3	1	0	4	Elective - 1
EVEXX	Electives in Energy & Sustainability	3	0	0	3	Elective - 2

Semester - II - Total Credits - 10

Semester - III

Course Code	Course Name	L	T	P	C	Category
EVEXX	Electives in Energy & Sustainability	3	0	0	3	Elective- 2
EVEXX	Electives-3 (Any)	3	0	0	3	Elective - 3
EVP01	Electives-3 (Any)	3	0	0	3	Elective - 3

Semester - III - Total Credits - 9

Semester - IV

Course Code	Course Name	L	T	P	C	Category
EVE01	Capstone Project	0	0	24	12	M Tech Project
OR						
EVTT02	Thesis*	0	0	0	12	M.Tech Thesis

Semester - IV - Total Credits - 12

Semester - V

Course Code	Course Name	L	T	P	C	Category
EVE01	Thesis*	0	0	0	14	M.Tech Thesis

***Only for those who have opted for the equivalent degree for the regular MTech Program**

Total Credits : Semester - I + Semester - II + Semester - III + Semester - IV
Total Credits : 9 + 10 + 9 + 12
Total Credits: 40

Students opted for the equivalent degree to the regular M.Tech. Program
Total Credits : Semester - I + Semester - II + Semester - III + Semester – IV+ Semester V
Total Credits : 9 + 10 + 9 + 12+14
Total Credits: 54

Additional Notes:

Program Equivalency:
Executive MTech (Online) Program is not equivalent to the regular offline MTech program at IIT Bhilai.

Thesis Requirements:
To achieve equivalency with the regular off-line MTech program, the candidate must complete a total of 26 thesis credit on campus from the fourth semester onwards.

BUCKET FOR ELECTIVES

Category	Sem	Course Code	Course Name	L	T	P	C
Electives in Power Systems & Electronics	2/3	EVE01	Power Quality Control for EVs	3	1	0	4
	2/3	EVE02	Smart Grids and EV Integration	3	1	0	4
	2/3	EVE03	Power Electronics for EVs	3	1	0	4

Category	Sem	Course Code	Course Name	L	T	P	C
Electives in Energy & Sustainability	2/3	EVE04	EV Charging Technology and Infrastructure	3	0	0	3
	2/3	EVE05	Renewable Energy Systems for EVs	3	0	0	3
	2/3	EVE06	Thermal Management Systems in EV	3	0	0	3
	2/3	EVE07	Vehicle Dynamics and Modeling	3	0	0	3
	2/3	EVE08	Environmental Impact of EVs	3	0	0	3

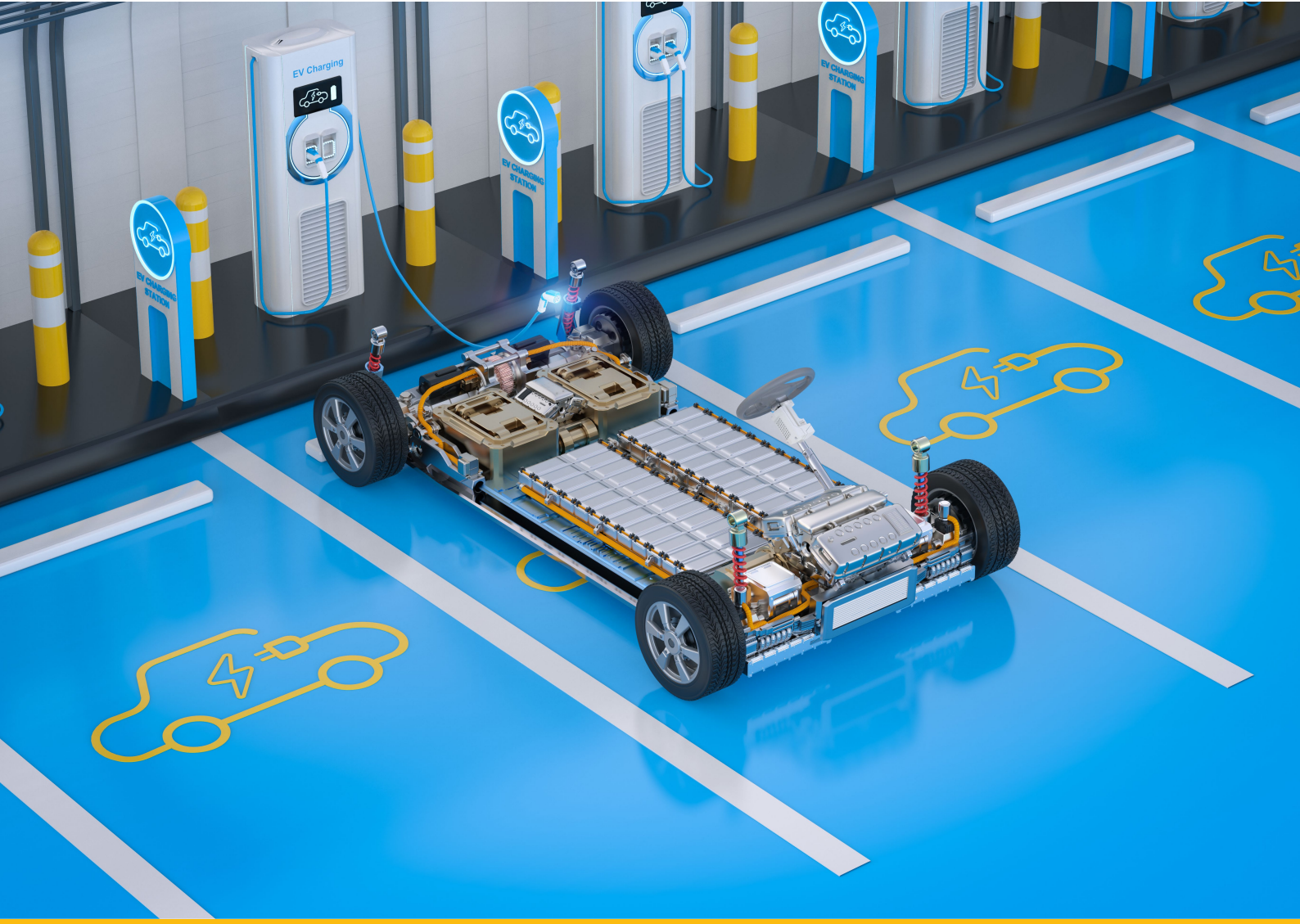
Category	Sem	Course Code	Course Name	L	T	P	C
Innovation, Business & Testing	3/4	EVE09	Project Management in EV Industry	3	0	0	3
	3/4	EVE10	EV Business Models and Market Analysis	3	0	0	3
	3/4	EVE11	Autonomous and Connected Vehicles	3	0	0	3
	3/4	EVE12	Testing and Certification of EV Batteries	3	0	0	3

Electives will be floated based on the availability of faculty members. This list may be updated from time to time and change batch-wise.

Evaluation

- Students will be evaluated in each semester. In addition to continuous online evaluation (Mid semester exam / Quiz / assignment / assessment) in the core/elective courses running in the first three semesters, the end semester exams will be offline* proctored exams. The end-semester offline exams in the first three semesters will preferably be conducted at the IIT Bhilai campus to give the candidates an opportunity to visit and explore the IIT Bhilai campus. This may also be clubbed with other activities such as document verification, campus immersion, project team formation, and interaction with the mentors/supervisors, etc. Exams may be organized at other IIT Bhilai Centers, subject to higher demand.

- The weightage of online evaluation and end-semester exams will be in the proportion of 40:60. To pass a course, a student must attain a minimum of 40% marks in the total marks.



CORE LEARNING OUTCOMES

- Demonstrate expertise in designing, analyzing, and implementing EV systems, including battery management and power systems.
- Apply advanced control strategies and renewable energy technologies to enhance the performance of EVs.
- Develop innovative solutions for EV charging infrastructure, smart grids, and sustainable energy integration.
- Ensure compliance with ethical standards, environmental policies, and safety regulations in EV development.
- Effectively communicate technical concepts, project outcomes, and business strategies in the EV domain.
- Exhibit lifelong learning capabilities to adapt to the rapidly evolving technologies in electric vehicles and sustainable mobility.

PROGRAM ADMISSION JOURNEY

STEP 1:
Fill up an online application form, upload the required documents and submit application

STEP 2:
Make the application payment

STEP 3:
Shortlisting based on work, and education profile

STEP 4:
If shortlisted, you will receive an offer letter from IIT Bhilai

STEP 5:
Pay admission confirmation fee within 7 days of receiving the offer letter

Note: The application fee once paid is not refundable. IIT Bhilai reserves the right to conduct the admissions process. By submitting the application, the students agree that any decision regarding Admissions from IIT Bhilai will be final and binding.

Fee Structure

Executive MTech in Advanced Electrical Vehicle Systems

Application Fee (Non-Refundable)	₹ 5,000/-			
Fees	Instalment 1	Instalment 2	Instalment 3	Instalment 4
	₹ 91,250/-	₹ 91,250/-	₹ 91,250/-	₹ 91,250/-
Total Fees	₹ 3,70,000/-			

Optional Fees

Head	Sem 1	Sem 2	Sem 3	Sem 4	Total
Optional Campus Immersion Fee	₹ 0/-	₹ 10,000/-	₹ 0/-	₹ 10,000/-	₹ 20,000/-
Optional Institute Alumni Fee	₹ 0/-	₹ 0/-	₹ 0/-	₹ 6,000/-	₹ 6,000/-

Cancellation & Fee Refund Policy:

- **Application Fee: Non-refundable.**
- **Course Fee Refund:**

A refund of 90% of the paid course fee will be issued if a request is raised before the Batch commencement date.

No refund will be provided on or after the batch commencement date.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भारतीय प्रौद्योगिकी संस्थान भिलाई

शिक्षा परिषद की अनुशंसा पर एवं पाठ्यक्रम की निर्धारित
अर्हताओं एवं शोध को सफलतापूर्वक पूर्ण करने पर
XYZ शर्मा
को
उन्नत विद्युत वाहन प्रणालियों में
कार्यकारी मास्टर ऑफ टेक्नोलॉजी
की उपाधि प्रदान करता है।
संस्थान द्वारा मुद्रांकित यह उपाधि दिनांक अठारह जून दो हज़ार बाईस
को प्रदान की गई।

SAMPLE

INDIAN INSTITUTE OF TECHNOLOGY BHILAI
upon the recommendation of the Senate hereby confers
XYZ Sharma
With the degree of
Executive MTech in
Advanced Electrical Vehicle Systems
for successfully completing the prescribed program study
and presenting the thesis.
Given this day the Eighteenth of June, Two Thousand Twenty Two
under the seal of the Institute.

कुलसचिव **Registrar** | अध्यक्ष, शिक्षा परिषद **Chairman, Senate** | अध्यक्ष, संचालक मंडल **Chairman, Board of Governors**

Proficiency Gained - Tools and Technologies

Simulation Software

MATLAB & SIMULINK · Ansys · AUTODESK

EV Design and Simulation

Battery Management Systems

LTspice · Battery Design Studio

Practical experience in EV design, battery technology, and energy management

Cloud Computing Platforms

aws · Google Cloud · Azure

Data storage, high-performance computing, specialized software

Virtual Labs

LabVIEW

Virtually Testing EV Systems and
Conducting practical experiments virtually

Programming Environments

python SOFTWARE FOUNDATION · R · C++

Learning programming for EV systems analysis and development

Get In Touch With Us

For registration and any other information please get in touch with us at admission.iitbhilai@digivarsity.com

Contact us: 033-4058-6356