

Executive MTech IN APPLIED MECHATRONICS AND ROBOTICS

Elevating Expertise, Redefining Insights

Forge Futures, Innovate Beyond - IIT Bhilai's Distinctive Edge

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 Executive MTech in Applied Mechatronics and Robotics is an advanced course of study that fuses multiple disciplines, preparing students for careers in mechatronics and robotics. This program begins with core principles, introducing the synergy between mechanical engineering, electronic control systems, and computer science. As students progress, they delve into specialized areas of robotics and automation, focusing on design, analysis, and implementation in various industries.

Who Can Apply?

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?

The Executive MTech in Applied Mechatronics and Robotics is tailored for professionals already immersed in technology-related domains such as IT professionals, software engineers, and experts in Mechatronics and Robotics.

Entrepreneurs, innovators, and tech enthusiasts, as well as engineers aspiring to master the dynamic field of Executive MTech in Applied Mechatronics and Robotics, will find this program specifically designed to meet their needs.

For engineers and software developers aiming to cultivate a profound understanding of Mechatronics and Robotics, the Executive MTech program offers invaluable insights and skills development.

PROGRAM OBJECTIVES

To introduce the fundamental concepts of robotics, focusing on the principles of robot design, operation, and control.

To study the role of robotics in various industries and future technological trends.

To introduce the fundamental concepts and components of mechatronic systems.

To foster the ability to analyze and synthesize mechatronic systems for various applications.

To understand the fundamental principles and workings of various sensors and instrumentation technologies.

To impart a comprehensive understanding of advanced robotic systems, including their design, control, and applications.

To explore advanced control systems, sensors, and actuators used in the development of humanoid robots.

To develop skills in designing and implementing motion planning strategies for various robotic systems.

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 STRUCTURE

Semester - I

Course Code	Course Name	L	т	Ρ	С	Category
MR01	Fundamentals of Mechatronics	2	0	0	2	Core Course
MR02	Fundamentals of Robotics	2	0	0	2	Core Course
MR03	Modern Control Systems	2	0	0	2	Core Course
MR04	Artificial Intelligence	2	1	0	3	Core Course

Semester - I - Total Credits - 9

Semester - II

Course Code	Course Name	L	т	Р	С	Category				
	Mechanisms for Robotic									
MR05	Systems	2	0	0	2	Core Course				
MR06	Sensors for Robotics	2	0	0	2	Core Course				
Select any one	e of three options									
MRXX	Electives in ME	2	0	0	2	Elective -1				
MRXX	Elective (EE)	2	0	0	2	Elective -1				
OR										
MREXX	Electives in MT	2	0	0	2	Elective -2				
MREXX	Electives in DSAI	2	0	0	2	Elective -2				
OR										
MREXX	Electives in MT	2	0	0	2	Elective -3				
						Campus				
MRC01	Campus Immersion	0	0	4	2	Immersion				

Semester - II - Total Credits - 10

Semester - III

Course Code	Course Name	L	Т	Ρ	С	Category
MREXX	Electives in MT&R	3	0	0	3	Elective 3/4
MREXX	Electives in MT&R	3	0	0	3	Elective 4/5
MRP01	Minor Thesis	0	0	8	4	Minor Thesis

Semester - III - Total Credits - 10

Semester - IV

Course Code	Course Name	L	Т	Ρ	С	Category
MREXX	Elective – MT&R	2	1	0	3	Elective 5/6
MRP02	Major Thesis	0	0	16	8	Major Thesis

Semester - IV - Total Credits - 11

Total Credits : Semester - I + Semester - II + Semester - III + Semester - IV Total Credits : 9 + 10 + 10 + 11 Total Credits: 40

Additional Notes:

Campus Immersion:

If opted, it will be conducted offline and may also contribute to lab credit requirements. (Campus immersion will run if more than 10 students opt for it)

Program Equivalency:

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

Thesis Requirements:

To achieve equivalency with the regular offline MTech program, the candidate must complete an additional 14 thesis credits on campus.

BUCKET FOR ELECTIVES

Category	Sem	Course Code	Course Name	L	Т	Ρ	С
		MRE01	Actuators	2	0	0	2
		MRE02	Industrial Automation	2	0	0	2
	MRE03 Advanced Control Theory		2	0	0	2	
Electives		MRE04	Signal Interface Circuits	2	0	0	2
		MRE05	Digital System	2	1	0	3
		MRE06	Intelligent Mechanical System	2	0	0	2
		MRE07	Smart Materials and structures	2	0	0	2

Category	Sem	Course Code	Course Name	L	Т	Ρ	С
		MRE06	Internet of Things	3	0	0	3
		MRE07	Machine Learning	2	0	2	3
Electives in		MRE08	Soft Computing	2	0	0	2
DSAI		MRE09	Reinforcement Learning	2	0	0	2
		MRE10	Natural Language Processing for Robotics	2	1	0	3
		MRE11	Soft Computing techniques	2	0	0	2

Category	Sem	Course Code	Course Name	L	Т	Ρ	С
		MRE11	UAV Guidance & Navigation	2	1	0	3
		MRE12	Industry 4.0	2	0	0	2
		MRE13	Machine Vision for Robotics	3	0	0	3
Electives		MRE15	Autonomous Vehicles	2	1	0	3
in MT&R		MRE16	Microcontroller and Microprocessor	3	0	0	3
		MRE17	Natural Language processing for Robotics	2	1	0	3



CORE LEARNING OUTCOMES

Ability to understand and apply basic principles of robotics in design and development.

Proficiency in analyzing robotic kinematics and dynamics for various applications.

Competence in applying mechatronic principles to real-world problems and innovative solutions.

Familiarity with current trends and emerging technologies in sensor and instrumentation fields.

Skills in critically analyzing robotic systems' performance and proposing innovative solutions for improvement.

Expertise in interdisciplinary collaboration, integrating knowledge from electronics, computer science, and mechanics in robotics.

Students will acquire the skills to critically assess and contribute to future developments in humanoid robotics technology.

Skills in evaluating and implementing state-of-the-art technologies in robot motion planning.

Capability to develop solutions for complex navigation problems in robotics.

Understanding of the ethical implications and real-world applications of mobile robotics technology.

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

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.

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 Applied Mechatronics and Robotics

₹ 5,000/-							
Instalment	1 Instal	ment 2	Instalment	3 Insta	alment 4		
₹ 91,250/-	₹ 91	,250/-	₹ 91,250/-	₹ 91,250/-			
₹ 3,70,000/-							
(Optiona	al Fees					
	Sem 1	Sem 2	Sem 3	Sem 4	Total		
rsion Fee	₹ 0/-	₹ 10,000/-	₹ 0/-	₹ 10,000/-	₹ 20,000/-		
	Instalment ₹ 91,250/- rsion Fee	Instalment 1 Instal ₹ 91,250/- ₹ 91 Optiona Sem 1 rsion Fee ₹ 0/-	₹ 5,0 Instalment 1 Instalment 2 ₹ 91,250/- ₹ 91,250/- ₹ 3,70 Sem 1 Sem 2 rsion Fee ₹ 0/- ₹ 10,000/-	₹ 5,000/-Instalment 1Instalment 2Instalment $₹ 91,250/ ₹ 91,250/ ₹ 91,250/ ₹ 3,700/ ₹ 3,700/ ∇ptional FeessSem 1Sem 2Sem 3$$old - $$old - $$$old - $$$$$$$old - $$$$$$$$old - $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$	₹ 5,000/-Instalment 1Instalment 2Instalment 3Instalment 3 $₹ 91,250/ ₹ 91,250/ ₹ 91,250/ ₹ 9$ $₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 3,7000/ ₹ 0/ ₹ 10,000/ ₹ 0/-$		

Cancellation & Fee Refund Policy:

₹0/-

₹0/-

₹ 6,000/-

₹ 6,000/-

₹0/-

Application Fee: Non-refundable.

Course Fee Refund:

Optional Institute Alumni Fee

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.



Tools and Technologies

Virtual Labs and Simulation Tools



For simulation and analysis of mechatronics & control systems



Open-source framework for robot software development





CAD design & simulation in mechatronics

Programming Platforms



Robotics and mechatronics machine learning & data analysis



Microcontroller programming & embedded systems

Software for Statistical Analysis & Data Processing





Data analysis & statistics

Remote Access Labs & Hardware Kits





DIY robotics kits - practical experiments at home

Internet of Things (IoT) Platforms



AI & ML Platforms



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