eMasters
IN
APPLIED MECHATRONICS AND ROBOTICS

Elevating Expertise, Redefining Insights

2 Years I Online Immersive Sessions I Graduate from an IIT

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 eMasters 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 eMasters courses offer the strategic edge you need to thrive in a competitive landscape.

Program Overview

The eMasters program 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?

- Should be a working professional with at least two (2) years of experience.
- Should have B.Tech/ BE/ M.Tech/ MSc (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.

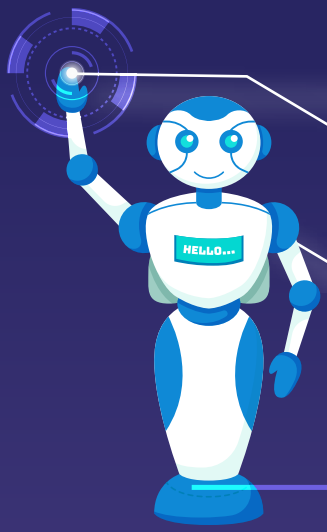
- Selection process will be scheduled post counseling & application process, depending on the number of eligible applications as per seat availability for the program. This entire process will be online.

Who Is This Program For?

- The eMasters 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 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 eMasters 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	Course Code	Course Name	Category
I	MRL501	Fundamentals of Mechatronics	Program Core (PC)
I	MRL502	Mechanisms for Robotic Systems	Program Core (PC)
I	MRL503	Fundamentals of Control Systems	Program Core (PC)
I	MRL504	Sensor for Robotics	Program Core (PC)
I	MRL505	Data Analysis and Visualization	Program Core (PC)
II	MRL512	Artificial Intelligence	Program Core (PC)
II	MRLXXX	Elective in ME	Program Elective (PE)
II	MRLXXX	Elective in EE	Program Elective (PE)
II	MRLXXX	Elective in DSAI	Program Elective (PE)
III	MRLXXX	Elective in MT&R	Program Elective (PE)
III	MRLXXX	Elective in DSAI/MT&R/EE/ME	Program Elective (PE)
III	MRP6XX	Minor Project	Thesis/Project
IV	MRP6XX	Major Project	Thesis/Project
		Campus immersion program*	

Category	Course Code	Elective Courses	Category
Electives in ME	MRL511	Actuators	Program Elective (PE)
	MRL622	Automation	Program Elective (PE)
Electives from EE	MRL601	Advanced Control Theory	Program Elective (PE)
	MRL602	Signal Interface Circuits	Program Elective (PE)
	MRL612	Digital System	Program Elective (PE)
Electives in DSAI	MRL615	Internet of Things	Program Elective (PE)
	MRL513	Soft Computing	Program Elective (PE)
	MRL613	Machine Learning	Program Elective (PE)
	MRL614	Reinforcement Learning	Program Elective (PE)
Electives in MT&R	MRL624	UAV Guidance & Navigation	Program Elective (PE)
	MRL623	Industry 4.0	Program Elective (PE)
	MRL621	Machine Vision for Robotics	Program Elective (PE)
	MRL520	Fundamentals of Robotics	Program Elective (PE)

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

Online Executive MTech - Robotics & Applied Mechatronics

Head	Sem 1	Sem 2	Sem 3	Sem 4	Total
Application Fee (Non Refundable)	₹ 5000/-	₹ 0/-	₹ 0/-	₹ 0/-	₹ 5,000/-
Admission Fee (Including Workshop /Training)	₹ 87,500/-	₹ 87,500/-	₹ 87,500/-	₹ 87,500/-	₹ 3,50,000/-
Instalment 1	₹ 45000/-				
Instalment 2	₹ 42,500/-				
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 80% 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.

क्रम सं./Serial No. 2022/0014 अनुक्रमांक सं./ID No. 12010230

भारतीय प्रौद्योगिकी संस्थान भिलाई

शिक्षा परिषद की अनुशंसा पर एवं पाठ्यक्रम की निर्धारित
अर्हताओं एवं शोध को सफलतापूर्वक पूर्ण करने पर
XYZ शर्मा
को
अनुप्रयुक्त मेक्ट्रोनिक्स और रोबोटिक्स में
ई-मास्टर्स
की उपाधि प्रदान करता है।
संस्थान द्वारा मुद्राकित 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
eMasters in
Applied Mechatronics and Robotics
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

Tools and Technologies

Virtual Labs and Simulation Tools

MATLAB® & SIMULINK®

For simulation and analysis of mechatronics & control systems

ROS
Robot Operating System

Open-source framework for robot software development

AUTODESK® FUSION 360™

SOLIDWORKS

CAD design & simulation in mechatronics

Programming Platforms

python SOFTWARE FOUNDATION

Robotics and mechatronics - machine learning & data analysis

ARDUINO™

Microcontroller programming & embedded systems

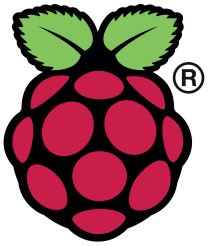
Software for Statistical Analysis & Data Processing

R

SPSS®

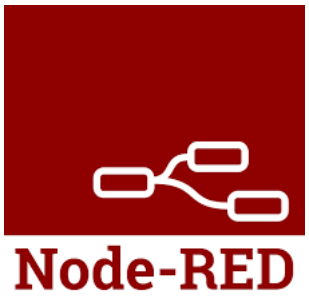
Data analysis & statistics

Remote Access Labs & Hardware Kits



DIY robotics kits - practical experiments at home

Internet of Things (IoT) Platforms



For IoT development & experiments.

AI & ML Platforms

Advanced electives in AI & ML

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