

**NAM:TECH**  
Institute of Manufacturing Innovation

# Fellowship Program in Intelligent Robotics and AI Systems

3-Month Hybrid Fellowship  
for B.TECH FINAL YEAR STUDENTS





## About NAMTECH

NAMTECH (New Age Makers' Institute of Technology), an educational initiative by ArcelorMittal Nippon Steel India, is the first Manufacturing, Engineering and Technology (MET) Institution. Aligned with the nation's 'Make in India' and 'Viksit Bharat 2047' goals, NAMTECH aims to accelerate this transformation by equipping ambitious minds with advanced, experiential engineering programs & promoting responsible technology to build a sustainable, innovative future.

NAMTECH is committed to meet the demand for Industry 4.0 & Industry 5.0 ready professionals by developing talent that is both technically competent, and conscious towards the environmental & social impact of innovation.

We are pleased to inform, the Ministry of Education, on the advice of UGC, hereby issues Letter of Intent (LOI) to NAMTECH for fulfilment of the required conditions within a specific period of for conferment of Institution deemed to be university status .

## About School of Robotics

School of Robotics (SoR) has carved its niche in the interdisciplinary learning and practice. With the paradigm shift in engineering education from focusing on core disciplines to integrating interdisciplinary applications, SoR provides a platform to educate and empower robotics enthusiasts across the country and beyond. Building upon the strengths of experiential learning in Industrial robotics, SoR is expanding into diversified fields such as collaborative systems, locomotion, aerial robotics, and legged robotics. To create a collaborative platform for translational research, innovative and demanding areas such as Human-Robot interface and soft robotics are being initiated.

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# NAMTECH Fellowship Program in Intelligent Robotics & AI Systems

The NAMTECH Fellowship Program in Intelligent Robotics and AI Systems is a structured, three-phase academic and project-oriented program designed to provide strong foundations and applied exposure in robotics, artificial intelligence, and autonomous systems.

## Online Component:

Conceptual learning and expert-led sessions delivered through virtual platforms focusing on simulation and coding.

## On-Campus Component:

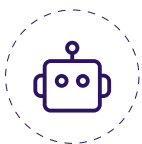
Hands-on project implementation, experimentation, and system integration.

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## Why This Internship is Different?

### Not Just Another Internship.

A Launchpad into Intelligent Robotics Careers.



Strong Foundation in AI for Robotics



Work with Industrial Robots & Cobots



Mentorship by Robotics Experts



Python-based Simulations (SLAM, Kalman Filter, PID, Particle Filtering)



Real Project Implementation on Campus



Exposure to Industry Case Studies



# Program Structure – Three Phases

## Phase 1: March 2026 (Online)

AI/ML for Robotics – Fundamentals focusing on simulations and coding. Activities include registration, webinars, and structured assignments.

 Topic 1	<b>LECTURE – Foundations:</b> Scope of AI/ML in Robotics; Intelligent & Rational Agents.	<b>ASSESSMENT</b> Make a conceptual design of Wheeled Mobile robot and sensors to perform collision avoidance write a Py script showing logic.
 Topic 2	<b>LECTURE – Agent Types:</b> Simple reflex, Model-based, Goal-based, and Utility agents.	<b>ASSESSMENT</b> Write a Python Script to simulate a mobile robot moving in grid space avoiding collision with timid reaction.
 Topic 3	<b>LECTURE– Symbolic AI:</b> Problem-solving agents; State-space representation; Search strategies.	<b>ASSESSMENT</b> Write a Python Script to simulate a mobile robot moving in grid space avoiding collision with timid reaction till reaches its goal using any heuristic path planning algorithm.
 Topic 4	<b>LECTURE– Logic &amp; Uncertainty:</b> First-Order Logic; Probability theory; Bayes' theorem.	<b>ASSESSMENT</b> Write a Python Script to simulate a mobile robot moving in grid space avoiding collision with timid reaction till reaches its goal using any heuristic path planning algorithm assigning random errors to the earlier code
 Topic 5	<b>LECTURE– Planning &amp; Localization:</b> Classical/Heuristic planning; Dead reckoning principles.	<b>ASSESSMENT</b> Write a python script to perform localisation based on dead-reckoning principle
 Topic 6	<b>LECTURE– Probabilistic Estimation:</b> Bayesian framework; Kalman Filter (KF) formulation.	<b>ASSESSMENT</b> Implement Kalman filtering for noise sensor data (given or random). Generate random sequence numbers, assign error % and then implement Kalman filtering in python script.
 Topic 7	<b>LECTURE–Advanced Filtering:</b> Alpha-Beta-Gamma filtering; Linear system assumptions.	<b>ASSESSMENT</b> Implement mapping for random set of data generated in py for mapping and mapping with Alpa-Beta-Gamma filtering.



### Topic 8

**LECTURE–Control Systems:**  
Reactive vs. Predictive control;  
PID tuning and stability.

### ASSESSMENT

Write a python script to implement PID control for randomly generated error in localisation and generate PWM control signal.



### Topic 9

**LECTURE–Monte Carlo Methods:**  
Particle filtering; Importance sampling and resampling.

### ASSESSMENT

Implement particle filtering based localisation in python simulation.



### Topic 10

**LECTURE–SLAM:**  
Simultaneous Localization and Mapping; Mapping coupling challenges.

### ASSESSMENT

Implement SLAM in python simulation.

## Phase 2: April 2026 (Online)

Expert seminars, industry talks, applied case studies, project floating, and guided group discussions for project formulation.

### Week 1 Activity: SEMINAR



**Keynote Speaker**  
**Dr. Ekta Singla**  
Associate Director,  
School of Robotics, NAMTECH  
PhD - IIT Kanpur



**Keynote Speaker**  
**Prof. Dr. Mohammad Ali Nasser**  
**Professorship,**  
Medical Autonomy and Precision Surgery (MAPS)  
School, TUM School of Medicine and Health

### Week 2 Activity: SEMINAR



**Experts**  
**Dr. Ashish Kumar Shukla**  
Associate Professor,  
School of Robotics, NAMTECH  
PhD - IIT Indore



**Experts**  
**Dr. Anubhav Mishra**  
Assistant Professor,  
School of Robotics, NAMTECH  
PhD - IIT Kanpur



**Experts**  
**Dr. George Yuvaraj**  
Assistant Professor,  
School of Robotics, NAMTECH  
PhD - BITS Pilani - Hyderabad



**Experts**  
**Mr. Mukesh Kumar**  
Senior Lecturer,  
School of Robotics, NAMTECH  
PhD - IIT Patna (Ongoing)

### Week 3 Activity: PROJECT FLOATING

**Faculty Mentor:**  
**NAMTECH - School of Robotics**

### Week 4 Activity: GROUP DISCUSSION

**Faculty Mentor:**  
**NAMTECH - School of Robotics**

## Phase 3: May 2026 (On-Campus)

Full-time on-campus, project-based learning involving design, development, testing, and demonstration under faculty mentorship.



AI-Based Pick-and-Place  
Robotic Arm



Seismic Survey Robot for  
Underground Mining Applications



Mine Safety Inspection Robot  
for Hazardous Environments



Computer Vision-Based Structural  
Inspection Robot



Mini Robot for ENT and Oral  
Inspection



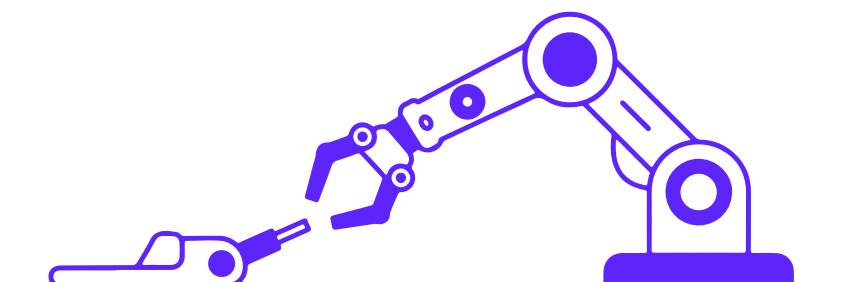
Physiotherapeutic Robot for  
Simulating Paralyzed Muscles

## NAMTECH Fellowship program Benefits

- Opportunity to work on Industry-Related Projects.
- Funding Support per project for approved project-related expenses.
  - Free access to the Phase-I online AI/ML for Robotics course.
  - Webinars, seminars, and industry talks conducted at the expense of NAMTECH.
  - Exposure to real-world industry and research case studies.
  - Academic mentoring and technical guidance throughout the program.
  - On-campus accommodation subject to availability (not mandatory) at the payment of actual fees.
  - Fellowship Certificate on successful completion.
  - Letter of Recommendation.
  - Access to NAMTECH's Industry grade world Class Robotics Lab established by ABB, Fanuc, and Addverb.

## Eligibility

Currently pursuing B.Tech 4th year (8th semester) enrolled in any recognized institute/university with a minimum of 6.0 CGPA / 60% and no active backlogs



## Application Process



Scan here for registration

Click here for registration

<https://forms.gle/WSxaN8C4eSrFnnny6>



### Step 1

Application to be submitted online via Microsoft Forms.



### Step 2

Submission of scanned Student ID.



### Step 3

Upload latest semester marksheet/result.



### Step 4

Statement of Interest (maximum 200 words).



### Step 5

Details of projects, papers, conferences, or research work completed till date. With your latest biodata.

## Shortlisting Criteria

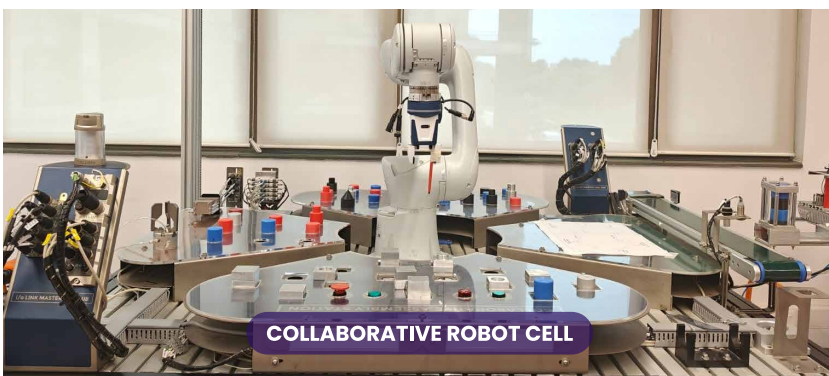
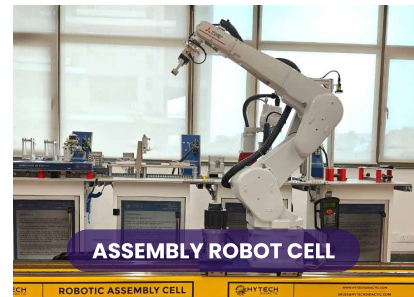
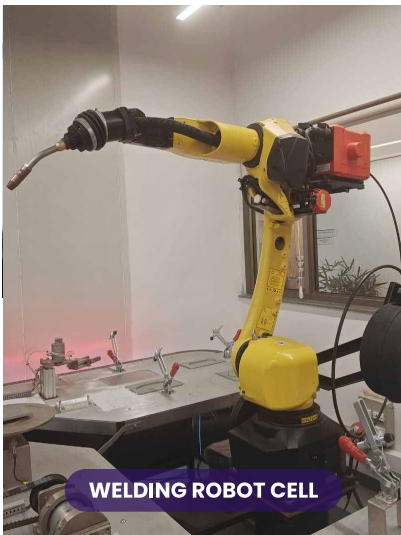
Candidates will be shortlisted based on the following weightage:

**50%** Academic Performance      **20%** Statement of Interest

**30%** Projects/ Papers/ Conferences/ Research Work

# Industry-Grade Equipment, On-Campus

Imparting Consciousness, Building Humane Capital



# NAMTECH Campus

NAMTECH's final home is a smart campus that is currently under development on over 150 acres of land in Ahmedabad and will accommodate 5 Schools, 2 centers and 1 center of Excellence.

This new campus of NAMTECH is scheduled to be fully operational by July 2026.

## Take the First Step Toward Becoming a Robotics Leader



**Address:**

Research Park, IIT Gandhinagar, Palaj, Gandhinagar, Gujarat – 382055, India

**[www.namtech.ac](http://www.namtech.ac) | [info@namtech.ac](mailto:info@namtech.ac)**

For more details contact: **Uttam Biswas +91 70653 62436**



Scan here  
for registration