Masters (M.Tech)

Specialization in

Artificial Intelligence

National Institute of Technology Agartala
Computer Science and Engineering Department
http://www.nita.ac.in

Highlights of the Masters (M.Tech) Specialization in Artificial Intelligence at NIT Agartala

- 👍 100% placement
- 👍 Advance curriculum
- 👍 Excellent lab facility
- 👍 Strong research group support

Major aspects of the programme,

1) Theoretical foundations: This will include the mathematical background required for the subjects.

2) Application of Theory: This will include courses where the fundamentals and advanced concepts (subjects) could be implemented.

3) Thesis/Project Work: Covering the application of the concepts learned or research, oriented work.

The programme is able to:

◊ **Build mathematical foundations for studying AI. (Core subjects)**

◊ **Once the foundations are built, give options to the students to choose their domain of interest (Computer Vision, Speech, Text, Robotics etc.) so that they can apply the concepts learned. (Elective subjects).**

Post graduate Programs are aimed at providing in-depth understanding and knowledge to the students in technical, human, and conceptual skills necessary for the industries with specialization in different functional areas like Artificial Intelligence. The teaching strategy for this program is oriented toward the application of structured knowledge with live case studies, research and teaching aids.

DEPARTMENT
OF
COMPUTER SCIENCE
AND
ENGINEERING

GOLDEN JUBILEE
KNOWLEDGE CENTRE

Masters (M.Tech) in
Artificial Intelligence

In the recent decades, artificial intelligence, popularly known as AI, has received much attention for its wide-spread applications in real-world problems of diverse domains. AI is a very broad field of study falling under the rubric of Computer Science that aims at solving computationally hard problems by mimicking human-like and biologically inspired approaches. Theoretical aspects of AI include logic and reasoning, machine learning (ML), intelligent search, intelligent planning, coordination and perception.

About

AI specialization is receiving much popularity for its scope of handshaking with emerging areas like Data Science, Cognitive Science and Robotics. This program would provide students an opportunity to learn both foundation and experimental components of AI and Machine Learning. A student, on completion of this program, will be able to undertake industry careers involving innovation and problem-solving using Artificial Intelligence (AI) and Machine Learning (ML) technologies and research careers in AI, ML, and Data Science, in general. Along with courses that provide specialization in AI, students will also have option to explore some applied domains such as computer vision, natural language processing, robotics, and software analysis etc.
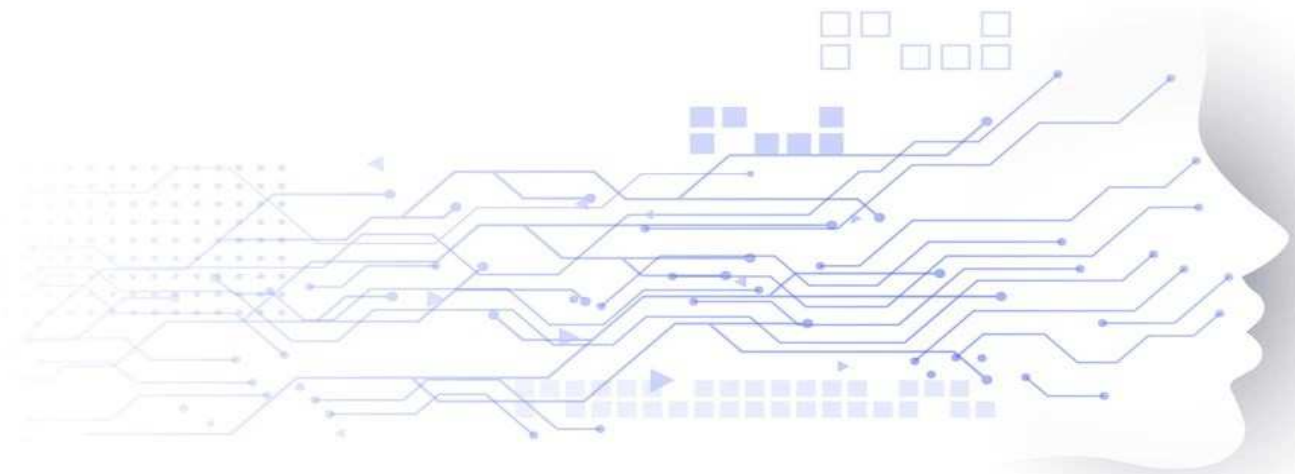
Program Outcome for the M Tech. AI

PO1: To develop the ability to apply knowledge of mathematics, engineering sciences for conducting independent research/investigation for solving practical problems.

PO2: To develop the ability to identify, formulate, conduct experiments, interpret data, synthesise information, and analyse engineering problems by writing and presenting an effective technical report/document.

PO3: To develop the ability to demonstrate mastery over the area as per the program's specialisation. The knowledge should be at a level higher than the requirements in the appropriate bachelor's program.

PO4: To develop problem-solving ability to design solutions for complex engineering problems in the context of societal and environmental commitments.

PO5: To demonstrate the capability of functioning effectively as a member or team leader in software projects considering multidisciplinary environments, thus solving real-world multifaceted problems.

PO6: To develop design thinking capabilities for innovation and contribute to technological knowledge and intellectual property development.

WHY

Why masters in Artificial Intelligence?

AI is an emerging field of technology that has brought impact in multiple spheres and domain of society.

1. High demand for both industry and academia across the area of engineering and science.

2. Effective placement and internship opportunities with top firms, startups and research organisation/ Industries.

3. Higher studies in focused AI domain has global acceptance and strong partnership in between academia and Industry.

WHAT

What is this Specialization ?

It is 2 years Masters program highly focused to industrial and academic research domain for better employability and futuristic academic program.

WHO

Who can join this course ?

Students with Bachelors degree in relevant fields of engineering can join with valid GATE Score.

Masters (M.Tech) in
Artificial Intelligence

About NIT Agartala

National Institute of Technology is a Centrally Funded Institute having recognition of Institute of National Importance being set up by Government of India. By the span of development, this institute offers B.Tech/BS-MS/BT-MT in 13 branches, M.Tech/MSc in 24 specialization, Ph.D in all branches of Engineering, Science, Humanities and Management, MBA, MCA. This institute produced 9350 Undergraduates, 2420 Post-graduates and 207 Ph.Ds. Presently, 3409 undergraduate students, 838 Post graduate students and 275 Ph.D scholars are pursuing their studies in this institute. This institute is having 92nd position in NIRF (National Institutional Ranking Framework) ranking with a remarkable placement records. It is situated 25km away from Agartala City- State capital of Tripura and 5 km away from National Highway. Agartala is connected by Air, Rail and Bus very effectively.

Synopsys

What is Artificial Intelligence specialization : A program that focuses on the symbolic inference, representation, and simulation by computers and software of human learning and reasoning processes and capabilities, and the computer modelling of human motor control and motion. Includes instruction in computing theory, cybernetics, human factors, natural language processing, and applicable aspects of engineering, technology, and specific end-use applications.[1]

It is also considered that , Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data, and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.[2]

1 - National Center for Education Statistics (NCES), Classification of Instructional Programs

2 - European Commission, AI Watch

Core Faculty Group

Specialisation in Post graduate Programs are aimed at providing in-depth understanding and knowledge to the students in technical, human, and conceptual skills necessary for the industries with specialization in different functional areas like Artificial Intelligence. The teaching strategy for this program is oriented toward the application of structured knowledge with live case studies, research and teaching aids.

Sl. No.	Name of the faculty member	Area
1	Dr Diptendu Bhattacharya	Soft Computing, Time series, Computational Intelligence
2	Dr Swapan Debbarma	NLP, High Performance Computing
3	Dr Kunal Chakma	Machine Learning, Deep Learning, Data Science, NLP
4	Dr Anupam Jamatia	NLP, Social Media Analytics, Machine Learning
5	Dr Dwijen Rudrapal	NLP, Information Retrieval, Text Analytics
6	Dr Suman Deb	Visual Inference, Artificial Intelligence, Computer Vision, Robotics, Context Based Reasoning
7	Dr Ashim Saha	DBMS, IOT, Image Processing
8	Dr Nirmalya Kar	Cyber Security

For details on faculty Please click here

Program Coordinator:

Dr. Suman Deb
Assistant Professor
Computer Science and Engineering Department
Associate Dean Academic,
Chairman Institute Innovation and Startup
National Institute of Technology Agartala
Tripura , India-799046
Phone: +91-9436459622 Email: sumandeb.cse@nita.ac.in
https://sumandeb.com/

Eligibility Criteria for Admission:

Admission is carried out through the central counselling CCMT. If seats are lying vacant, then institute admits the student through publication /advertisement by NIT Agartala.

Scholarship: Students admitted through CCMT/CCMN are eligible to get the monthly scholarship of Rs.12400/-- subject to fulfillment of other criteria and financial availability from Ministry of Education, Government of India.

Program duration: Two years (Four Semester)

Program Structure: This program is having 80 credits where as 25 credits on 1st semester and 25 credits in 2nd semester, 10 credits in 3rd semester, 20 credits in 4th semester. In First year i.e. First and 2nd semester, only theory and sessional classes are taking and in 2nd year (3rd and 4th semester), Project and thesis is being carried out in the Industrial organization or in the institute on the proposed Research Topic so that at least one Resource paper may be able to publish. The detailed credit, subject and syllabus of the program are available in the department website.

Evaluation System: Continuous Evaluation system is followed. Credit based Cumulative Grade Point Average (CGPA) System along with SGPA (Semester Grade Point Average) system is adopted. Theory subjects are evaluated based on Internal Assessment (30 marks), Mid Term Examination(20 marks), and End Term Examination (50 marks). Questions are prepared following the Blooms Taxonomy satisfying the NBA pattern. Project and Thesis are being evaluated by an Evaluation Committee where External Expert from renowned institutions/organizations like IITs, NITs, ONGCs are present to evaluate the works being carried out by the scholar under the supervision of a faculty member.

The detailed evaluation system is available in M.Tech Rules and Regulation, 2017, which are found in our website of NIT Agartala (www.nita.ac.in).

Lab Facilities

   Exclusive Artificial Intelligence Lab dedicated for the specialization.

Placements and Internships: The institute is having dedicated training and placement department named Career Counseling Department (CCD) though which students are being provided training, placements.

Previous batches having 100% Placement and ongoing students having internship in companies like Intel, Google etc.
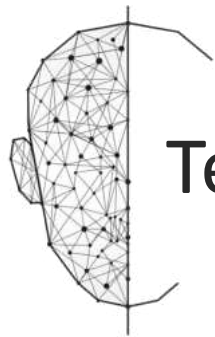
Course structure for M.Tech in Artificial Intelligence
Department of CSE, NIT Agartala

Semester	Subject	L	T	P	Cr.	Class Hours per week	Marks
First	Advanced Data Structures and Algorithms	3	1	0	4	4	100
	Artificial Intelligence	3	1	0	4	4	100
	Computational Methods of Optimization	3	1	0	4	4	100
	Elective, I Stochastic Models and Applications Natural Language Processing Soft computing Data Mining Pattern Recognition	4	0	0	4	4	100
	Elective, II Expert Systems Computer Vision Wireless Communication Network Information Retrieval AI for Cyber Security	4	0	0	4	4	100
	Laboratory I (Advanced Data Structures and Algorithms)	0	0	2	2	3	100
	Laboratory II (Artificial Intelligence)	0	0	2	2	3	100
	Seminar	0	0	1	1	2	100
	Total	17	3	5	25	28	800
Second	Robotics and automation	3	1	0	4	4	100
	Machine Learning	3	1	0	4	4	100
	Computational Linear Algebra	3	1	0	4	4	100
	Elective, III Agent based intelligent system Deep learning Data Visualization Human Computer Interaction Embedded and Realtime System	4	0	0	4	4	100
	Laboratory- I (Robotics and Automation Lab)	0	0	2	2	3	100
	Laboratory-II(Machine Learning)	0	0	2	2	3	100
	Project Preliminaries	0	0	3	3	6	100
	Comprehensive Viva	0	0	2	2	0	100
	Total	13	3	9	25	28	800

Course structure for M.Tech in Artificial Intelligence
Department of CSE, NIT Agartala

Se-me-ster	Subject	L	T	P	Cr.	Class Hours per week	Marks
3	Project and Thesis Work- I *Students may go for industrial or inter institute collaboration, based Project work for 6 months to 1 year. The DPPC and concerned local guide may be empowered to recommend such provision. All existing academic rules of institute will prevail. The exact modalities may be recommended by DPPC.	0	0	10	10	FULL	100
	Total	0	0	10	10		100

Semester	Subject	L	T	P	Cr.	Class Hours per week	Marks
4	Project and Thesis Work- II *Students may go for industrial or inter institute collaboration, based Project work for 6 months to 1 year. The DPPC and concerned local guide may be empowered to recommend such provision. All existing academic rules of institute will prevail. The exact modalities may be recommended by DPPC.	0	0	20	20	FULL	300
	Total	0	0	20	20		300
Cumulative credit of the course							
Semester-I		17	3	5	25	28	800
Semester -II		13	3	9	25	28	800
Semester -III		0	0	10	10	Full	100
Semester -IV		0	0	20	20	Full	300
Total		30	6	44	80		2000

Testimonial of Students

NIT Agartala is a place of great opportunities with an excellent learning environment. The master's program in Computer Science and Engineering provides a wide range of research areas to explore, along with advanced knowledge of core subjects. The faculty members are very supportive and always encourage the students to strive for excellence. The departmental workshops, seminars, conferences etc. present a platform for gaining practical knowledge and collaborating with experts around the world. Along with the well-structured academic curriculum, the various cultural and sports activities provide a balanced environment for the students. I am thankful for the support and mentorship from the faculty members and the research-oriented program structure, which paved my way to pursue higher studies and achieve bigger goals.

Dr. Mitali Sinha, 2016 Batch M.Tech Gold Medallist

NITA is a great spot in terms of learning and polishing the skills of an individual. The faculties put tremendous amount of efforts to make the courses more industrial oriented which help the students to survive in this competitive world. As a part of m.tech program I had an opportunity to work as a teaching assistant under Prof Suman Deb who has been a motivation throughout my journey.

Suraksha, 2017 Batch M.Tech Gold Medallist

Tutan Nama, presently I am a research scholar at IIT Kharagpur in the CSE Department. My area of reasearch in

Looking towards future and beyond

For admission related details please visit

https://nita.ac.in/NITAmain/admission/mtechadmission.html

For any query feel free to contact program Coordinator:

Dr. Suman Deb
Assistant Professor
Computer Science and Engineering Department
Associate Dean Academic,
Chairman Institute Innovation and Startup
National Institute of Technology Agartala
Tripura , India-799046
Phone: +91-9436459622 Email: sumandeb.cse@nita.ac.in
https://sumandeb.com/