



A COLLABORATION OF ASTROWING MNNIT AND TSAW.



BUILDING ON IMAGINATION



**LEARN3D:
INTRODUCTION TO
CAD AND 3D PRINTING**



ABOUT US

Robotics Club MNNIT is a diverse group of robotics enthusiasts from all the college departments, which runs under the umbrella of the Student Activity Centre of MNNIT Allahabad.

Established in 2016, we are mainly concerned with building robots for academic purposes, competing at national events, or even building just out of imagination. This puts us in frequent contact with a plethora of software, hardware, and technologies, like Computer Vision, Simulation Softwares (Gazebo, Pybullet, etc.), CAD Softwares, ROS, devising algorithms, path planning, Machine Learning, Microcontrollers, Kinematics to name just a few of many. Since its creation, this club has seen the completion of hundreds of projects, participated and won accolades in multiple national-level events, and organized various workshops with a decent footfall.

Working closely with the industries, our people regularly acquire lucrative tech giants packages, internships in IITs, and various tech companies.

Our club has also been the birthplace of a startup TSAW in the drone sector, gaining ground in the field and as a company.

We have a team of friendly experts equipped with all kinds of tutorials and workshops along with a compelling workspace to make you an integral part of this rapidly expanding world.

Jigyasa

“Tell me and I forget, teach me and I may remember, involve me and I learn.”

-Benjamin Franklin

Jigyasa is the workshop venture of the Technical clubs of MNNIT, namely Robotics, Aeroclub, and Astrowing, in collaboration with TSAW, a fully functional drone startup that emerged from our clubs. We are motivated by the desire to supplement education with the present-day industry requirements, making the participants future-ready with their skills and a problem-solving mindset.

The workshops under Jigyasa comprise various projects, activities, and interactive sessions, which will help you understand the most difficult concepts in the most comfortable manner. Hence, by emphasizing innovation and imagination, these workshops will instill in your minds a profound scientific temperament and fascination towards technology.

OVERVIEW

"Anyone can draw on a book, but it takes brains to build it in reality"

~Charles F. Lummis

3D printing is a disruptive technology changing the fundamental dynamics of manufacturing.

CAD and 3D printing, together, are an important pillar in the manufacturing Renaissance of the 21st century. In this workshop, we will begin everything from scratch: beginning with CAD, software skills, and gradually moving towards CNC machining and 3D printing.

You will learn all about 3D printing technology, construction, working and usage of a 3D printer, understand the materials and gain a deep knowledge of all the softwares and skills needed to design and print your own models.

Prerequisites:

None

Target Audience:

Anyone Interested

WORKSHOP

SCHEDULE

DAY 1:

- INTRODUCTION TO COMPUTER AIDED DESIGN (CAD)
- APPLICATIONS OF CAD
- INTRODUCTION TO ADDITIVE AND SUBTRACTIVE MANUFACTURING
- INTRODUCTION TO CAD SOFTWARES-FUSION 360/SOLIDWORKS
- SKETCHING IN SOLIDWORKS/FUSION 360
- BASIC FEATURES IN SOLIDWORKS
- DESIGNING IN CAD SOFTWARES

DAY 2:

- DESIGNING IN CAD SOFTWARES (CONTD.)
- SIMULATING MOTION IN CAD SOFTWARES
- SOME MORE FEATURES OF CAD
- INTRODUCTION TO SIMULATIONS
- STRESS SIMULATIONS IN FUSION 360
- THERMAL SIMULATIONS IN FUSION 360
- INTRODUCTION TO TOPOLOGY OPTIMISATION

DAY 3:

- INTRODUCTION TO CNC MACHINING
- UNDERSTANDING G AND M CODES
- CNC MACHINING USING FUSION 360
- INTRODUCTION TO 3D PRINTING
- UNDERSTANDING THE WORKING OF A 3D PRINTER
- HOW TO USE A 3D PRINTER TO MAKE 3D PRINTS
- UNDERSTANDING PRINTING MATERIALS AND SLICING SOFTWARE
- UNDERSTANDING PRINTER SETTINGS FOR EXCELLENT RESULTS
- PROJECTS AND RESOURCES

OUR OTHER WORKSHOPS

ASTRONOMY

- Beginner's walkthrough of Astronomy
- Diving Deeper into the Cosmos
- Astronomy from an Engineer's Perspective
- Establishing an Astronomy Club

AEROSPACE

- Introduction to Flight
- A peek into the Aerospace Sector
- Getting Started with Drones
- Drone Automation
- Establishing an Aeroclub in your College
- First step to Aerodynamics with OpenVSP, F360 and Ansys

GENERAL

- Rise and Program
- Think3D: Fundamental of 3D Modelling and 3D Printing
- Learn3D: Introduction to CAD and 3D Printing

ROBOTICS

- Kickstart your journey into Robotics
- Introduction to Artificial Intelligence
- Introduction to Kinematics in Robotics using PyBullet
- Kit-up to Set-up: To Establish a Robotics Club
- Build your own Robot
- Introduction to Simulation Software in Robotics
- Stepping into Electronics and Arduino
- Introduction to Computer Vision with Raspberry Pi
- Introduction to Autonomous Vehicles with CARLA and Imitation Learning
- Internet of Things (IoT)

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