MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY ALLAHABAD

ROBOTICS AND AEROMODELLING WORKSHOP

Organised By :

Robotics Club and AeroClub

MNNIT ALLAHABAD

CONTENTS

About Us

Motilal Nehru National Institute of Technology Allahabad (MNNIT ALLAHABAD) is an Institute of National Importance located in Prayagraj, Uttar Pradesh, India. The college was established in 1961 and since then it has been working to pursue excellence in education , research and innovation.

Robotics Club

We are a diverse group of over-enthusiastic robotics nerds from all the departments of college. The club is a student body which runs under the umbrella of Student Activity Centre MNNIT ALLAHABAD.

We build robots for academic purposes, to compete at national events or just out of freaky minds.

Fascinated but Clueless? No worry. We are here to induct you to the rapidly expanding world of robotics. One on one guidance, workshops and tutorials along with tools, equipments, components and workspace eagerly awaits you!

AeroClub MNNIT

The club is a student body comprising of aerospace enthusiasts which runs under the umbrella of Student Activity Centre MNNIT ALLAHABAD.

The club was Founded in 2009 and since then the club has come afar. Our love for aircraft, fervour to fly and perseverance, has been able to uphold the legacy of excellence and made club stand this tall.

We build aerial vehicles for academic purposes, to compete at national events or just out of freaky minds.
Till now our mission was to acquire Knowledge about aerial systems through experiments with models and knowledge transfer to its members and now we look forward to sharing our knowledge beyond college as well.

We have also initiated some work on Astronomy, astrophysics, astrobiology, space science and propulsion system.Also occasionally we arrange stargazing and related events.

About Workshop

"The value of an idea lies in using it"

The workshop is designed to be 6 hours long and is divided into 3 session autonomous robotics, manual robotics and Aeromodelling respectively. Each session consists of introduction to concepts concerned followed by practical experience where students will be be building their cool products based on concepts taught.

Course Outcomes

- Students learn the basics of Robotics and Aeromodelling Identify the major components of a robot and learn the many ways robots are being used in industry.
- Understanding science behind flying systems and their applications.
- Skill set developed includes understanding of aerial systems, electric circuits, basic programming and sensor interfacing, and learning simple engineering process.
- Hands-on experience for participants with DC motors,Sensors, Microcontrollers, Motor Drivers, Manual Robotics etc thus making them capable to visualise the applications of concept they learn in and beyond their curriculum.
- With the concepts taught students must be able to build simple robotic devices like line follower and modelling and flying their miniaturised remote controlled gliders and Quadcopters.

About Instructors

The instructors comprise of senior members of both robotics and aeroclub who have not only excellent knowledge over these areas but have also competed and won a number of prizes in a number of national level aeromodelling and robotics events. Many of these have been already placed with reputed organisations all across the globe and have commendable knowledge on present needs of industry.

Course Structure

- Brief Intro on Autonomous Robotics
- Designing the Line follower Robot
- Designing the Manual Robot
- Intro to flying systems
- Air Show
- Awards and Certificates

Eligibility

- Anybody interested in Robotics and Aeromodelling can attend this workshop.

Workshop Content

Robotics

Robotics is a truly multi-disciplinary field which combines mechanical, electrical, electronics and programming domains of science.
It is ideal for young students because it exposes them to hands-on applications of math, science, and engineering concepts.
In addition, robotics motivates children understand how things work, and encourages them to use their creativity and imagination skills during designing robots.
India is still to go a long way as far as introduction of practical element in the education system is concerned, which robotics does the fun way.
We will train a student from scratch to a complete knowledge of how a robotic system perceives and responds to its environment

Autonomous Robotics

- Intelligent machines created by intelligent creatures

Ever wondered how Sophia or humanoid robots work then autonomous robotics is what you are thinking of.
Tentative time for autonomous robotics session:3hrs

Autonomus Workshop Contents:

- Introduction to World of Robotics:
- Understanding of various Sensors as a way to perceive the environment
- Introduction to Arduino as a microcontroller
- Understanding of DC motors, stepper motors and various other actuating devices
- Automation of hardware by computer programming
- Hands on experience on controlling devices by coding Arduino board

A Line follower is an autonomous robot which follows either black line in white are or white line in black area. Robot detects particular line using IR Sensors and keep following it.

After introducing the students to basic elements robotics a Practical session will be held where they will be designing a line follower robot completely from scratch helping them in visualising the concepts learnt.
After the course the students will be in a position to understand and build simple robots.

Manual Robotics

-where action speaks louder than words

Have you ever wondered what goes behind the giant machines in industry being controlled by just one man sitting comfortably in a glass cabin, then manual robotics is what you should look for:

Tentative time for manual robotics session: 2 hours

Workshop Contents

- Understanding of various motion controlling mechanisms
- Introduction to various actuating devices like servo motors,stepper motors etc.
- Designing controller for the robot
- Hands on experience on controlling of robot via controller
- Introduction to Wireless control for robot

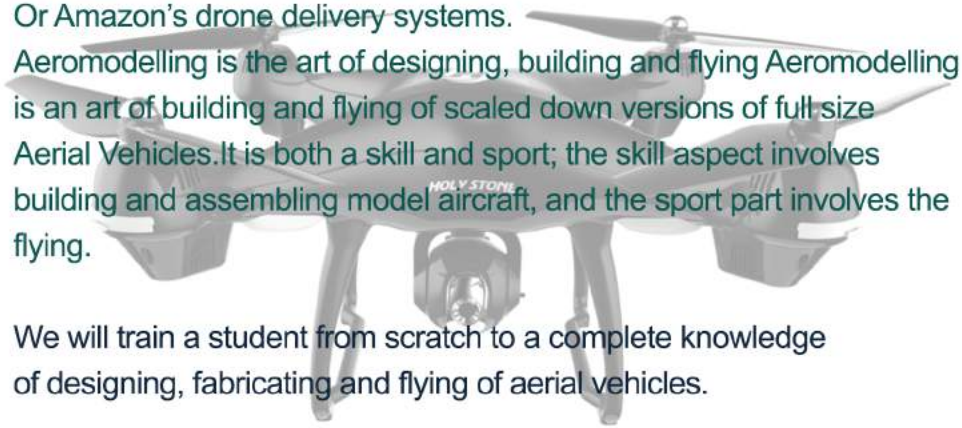
Demonstration session

A live Demonstration of various manual robotics models like scaled down version of curosity rover as an all terrain vehicle, Live assembling of a garbage collecting robot, design of gripping mechanisms will be held thus enable the students to understand and apply by themselves the concepts learnt.

AEROMODELLING

"You are not born with the wings, you create them"

Aerospace is a huge sector and is booming with a lot of career opportunities. We are entering space age.Aerial systems play a very important role in today's world, let it be gigantic fighter planes Or Amazon's drone delivery systems.
Aeromodelling is the art of designing, building and flying Aeromodelling is an art of building and flying of scaled down versions of full size Aerial Vehicles.It is both a skill and sport; the skill aspect involves building and assembling model aircraft, and the sport part involves the flying.



We will train a student from scratch to a complete knowledge of designing, fabricating and flying of aerial vehicles.

Flying systems and aeromodelling

- Tentative time for session: 1hour

Workshop Contents

- Introduction to physics of flight
- Description on working of flying machines
- Introduction to construction of Miniature model of actual planes
- Introduction to construction of Quadcopters and hexacopters
- Live assembling of a quadcopter
- Brief introduction on applications of Aerial vehicles and latest trends in aerospace sector

Live Airshow

A live flying session will be held where we will be flying some of our Remote controlled aircrafts and quadcopters.Its will be really exciting and inspiring to flight models assembled in front of students reaching the heights of sky!!

STILL HAVE DOUBT ??

WE LOVE INTERACTIOS , FEEL FREE TO CONTACT US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