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RSD RESEARCH SCHOLARS' DAY

# INTRODUCTION TO DOCKER

Nandakumar Edamana

Docker is the industry standard for containerization, a technology that helps you develop, test, and ship applications, especially Web services, on a wide-variety of platforms in secure and predictable manner. It can also be used in various other scenarios, for instance, generating reproducible builds of system software.

## OBJECTIVES

- How to set up Docker in your laptop
- Running readily available images
- Writing Dockerfiles to build your own images
- Multi-stage builds
- docker-compose

## REQUIREMENT

- Laptop with Ubuntu or some compatible GNU/Linux distro
- (Docker is supported on both Windows and macOS, but you'll either have to set it up on your own or come to the workshop with an Ubuntu virtual machine ready in your laptop).
- CPU and RAM specs don't matter much, but as much as free space is needed on your disk.

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Prerequisite: Experience with command-line interface and basic programming skills

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# WORKSHOP ON MOBILE ROBOTS & MANIPULATOR DESIGN

SESSION 1

**Introduction to Manipulators + Robotics Foundation**

SESSION 2

**Forward/Inverse Kinematics + DH Parameter Derivation**

SESSION 3

**Simulation & Validation in MATLAB**

SESSION 4

**Introduction to Arduino + ROS2**

SESSION 5

**Mobile Robots and MATLAB simulation**

## WHO CAN ATTEND ?

ANYONE WHO IS PASSIONATE TO EXPLORE ROBOTICS, SIMULATION, AND HARDWARE CONTROL.

## WHY TO ATTEND ?

THE SESSION WILL EMPHASIZE THE WORKING PRINCIPLES OF MANIPULATORS AND AND MOBILE ROBOTS AND OPEN THE POSSIBILITIES TO EXECUTE PROJECTS IN ROBOTICS WITH A PROPER UNDERSTANDING OF MATHEMATICAL MODELLING AND CONTROL. THE WORKSHOP WILL ULTIMATELY EQUIP PARTICIPANTS TO SIMULATE DESIGNS IN MATLAB AND INTEGRATE HARDWARE USING ARDUINO AND ROS 2.

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# Workshop on 3D printing

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- Fundamentals of 3D printing
- Designing and prerequisites
- Familiarising 3D printers and aligned softwares
- Post-processing of 3D printed components.

## Why to attend

The session will precisely give an outline of the 3D printing technology and its potential in the present manufacturing and product development scenario. The workshop will set a foundation to find new project ideas and to develop interesting product development pathways.

## Who can attend

Anyone who likes to learn about 3D printing

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# Workshop on Design for Additive Manufacturing

- DETAILING OF ADDITIVE MANUFACTURING
- FUNDAMENTALS OF DESIGN FOR ADDITIVE MANUFACTURING
- PRACTICAL LESSONS ON TOPOLOGY OPTIMISATION
- HANDS-ON TRAINING IN RELATED SOFTWARE

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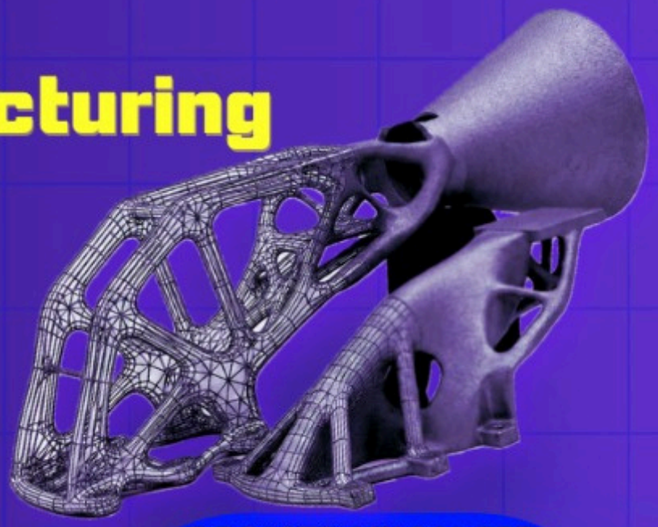

REGISTRATION FEE
RS.500/-

### Who can attend

Anyone who is passionate to explore Additive Manufacturing

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### why to attend

The session will emphasize the importance of Design for Additive Manufacturing and open the possibilities to find projects in the domain which can be encountered with the proper understanding and knowledge in softwares. The workshop will ultimately equip the participants to develop sustainable designs.

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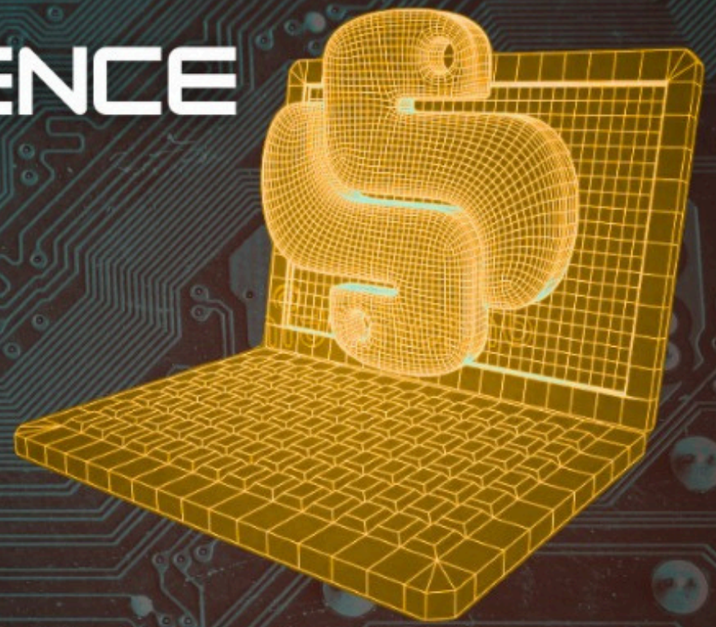
# PYTHON FOR DATA SCIENCE



- Session 1 - Python Foundations
- Session 2 - Core ML concepts
- Session 3 - Neural network and Deep learning libraries
- Session 4 - Hands-on ML project

**REGISTRATION FEE RS.500/-**

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## WHY TO ATTEND

This course offers a beginner-friendly introduction to Python and machine learning, helping students from any branch build essential computational and analytical skills. By the end, participants will confidently apply ML tools to real datasets, an increasingly valuable advantage in every engineering discipline.

## Who can attend

1st, 2nd year btech students from a non-CS background

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