

# PMRF-ISSS Teaching Programme Prime Minister Research Fellowship students' teaching requirement

facilitated by the Institute of Smart Structures and Systems



### Module PMRF-ISSS080/II/2024

# Robotics and Controls

Name of the PMRF student

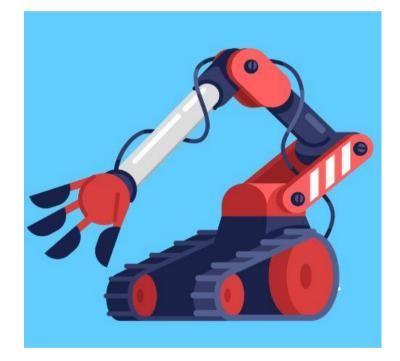
#### Details of the content of the module

## Aman Singh

#### Required background of the students taught

This course is ideal for 2nd-year undergraduate engineering students from any branch who are interested in robotics.

Others are also encouraged to take the



### **Robotics and Controls**

List of Topics to be covered:

- 1. Python Basics
- 2. Coordinate Frames and Homogeneous **Transformations**
- 3. FK and IK (2D manipulators, Differential Drive)
- 4. Jacobian and its applications
- 5. Dynamics and Euler-Lagrangian **Equations**
- 6. Optimization, Trajectory optimization and Trajectory generation
- 7. Feedback Linearization
- 8. Linear Control
- 9. Understanding 3D motions
- 10. D-H Algorithm for manipulators

#### Schedule of the module

Lecture videos will be uploaded every week at 5pm on Tuesday and 5pm on Thursday.

Start Date: June First week

End date: September Last week

Meeting link: Will be shared later

Link

Contact email ID: isss.forum@gmail.com

**Registration link:** 

https://forms.gle/Krskckvqyb8jA9347