



Module PMRF-ISSS176/III/2024

# Robot Learning and Control

## Name of the PMRF student

Ratnangshu Das

## Required background of the students taught

Introductory level course for students of ME, EE, AE, particularly interested in robotics and control

Prerequisites: Programming in Matlab, Linear Algebra, Calculus.

## Online session coordinator

Will be chosen from the list of registrants

## Details of the content of the module

### Part1: Control Systems:

Week 1: Introduction, Rotation, Homogenous Transformation, Lagrangian Mechanics

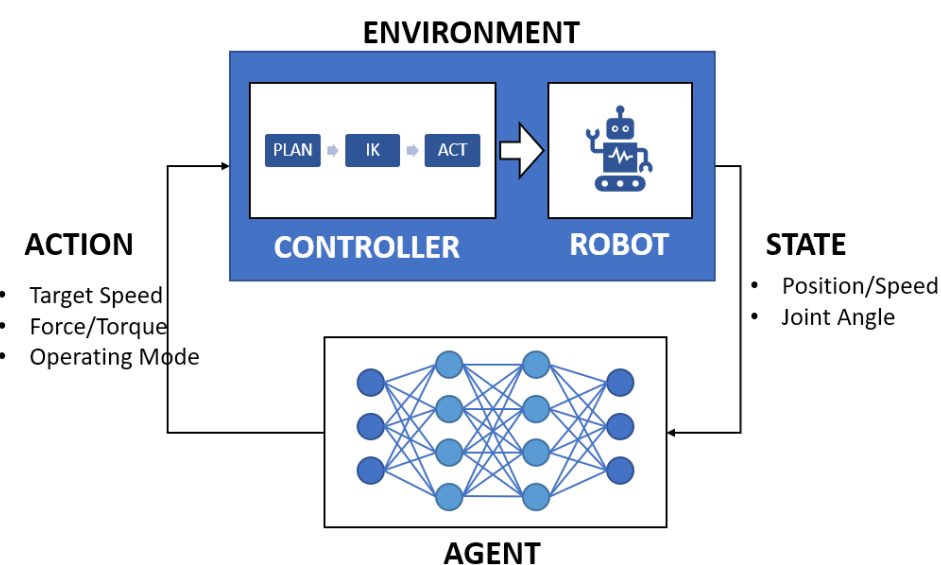
Week 2: Task Space Dynamics, Control of Robotic Systems, State-space modelling

Week 3: Pole-placement, PID control, LQR Control, Comparison Lemma, Lyapunov Stability

### Part 2: Learning-based Control

Week 4: Dynamic Programming, Policy Iteration, Value Iteration

Week 5: Q-Learning, SARSA, Actor-Critic



## Schedule of the module

Start Date: 23 December, 2024

Live lectures will be conducted (or recorded lectures might be uploaded) on Mondays, Wednesdays and Fridays from 10:30 am to 12:30 pm (25-26 Lectures)

End Date: Tentatively by end of January 2024

Meeting link : Will be shared later

[Link](#)

Contact email ID: [issf.forum@gmail.com](mailto:issf.forum@gmail.com)

Registration  
link: <https://forms.office.com/r/CpvBxh6T7R>