

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

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Week 5

Week 6

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Week 8

Week 9

Week 10

Week 11

● Lecture 21 - Manipulator Mechanism Design

● Lecture 22 - Industrial Robots and Applications

● Week 11 - Lecture Notes

○ Quiz : Assignment 11

● Feedback for Week 11

● Assignment 11 Solution

Week 12

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Assignment 11

The due date for submitting this assignment has passed.

Due on 2021-04-07, 23:59 IST.

As per our records you have not submitted this assignment.

1) For a spray painting robot, which DOF is not required?

1 point

- pitching motion of the spray gun
- roll about the wrist
- yaw motion of the wrist
- all of the above DOFs are required

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
roll about the wrist

2) Which robot structure has the highest load carrying capacity?

1 point

- cylindrical robot
- spherical robot
- cartesian robot
- SCARA robot

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
cartesian robot

3) The structural length index is the ratio of

1 point

- total length of the robot to the work volume
- total length of the robot to the square root of work volume
- total length of the robot to the cube root of work volume
- total length of the robot to the square of work volume

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
total length of the robot to the cube root of work volume

4) The velocity ellipsoid is a metric of

1 point

- rate of change of joint velocities
- rate of change of joint accelerations
- ease of acceleration in a particular direction
- ease of motion in a particular direction

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
ease of motion in a particular direction

5) The inertial ellipsoid indicates

1 point

- how quickly the end effector can accelerate in a particular direction
- ease of motion in a particular direction
- measure of mass distribution of the robot
- none of the above

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
how quickly the end effector can accelerate in a particular direction

6) In most industrial manipulators the last three axes

1 point

- are skewed in space with respect to each other
- are parallel
- intersect at a point
- none of the above

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
intersect at a point

7) Majority of the robots in the world are applied in

1 point

- medical institutions
- automobile and electronics industry
- defense industry
- pharma industry

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
automobile and electronics industry

8) In an industry, robots are used for tasks that come under

1 point

- flexible automation
- hard automation
- fixed position layout
- product layout

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
flexible automation

9) As per current industrial laws

1 point

- only trained professionals are allowed around a robot's work area
- humans are allowed around a running robot during its maintenance
- robots and humans are separated by a physical barrier
- there is no need of physical barriers for slow speed robots

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
robots and humans are separated by a physical barrier

10) For a robot in an industry how many levels of safety are required?

1 point

- 2
- 3
- 4
- 5

 No, the answer is incorrect.
Score: 0

 Accepted Answers:
3