



Value Added course on BASICS OF ROBOTICS



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Course Instructor:
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Department

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Technology

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COURSE HIGHLIGHTS

Mode of Delivery:
OFFLINE CLASSES

Duration: 30 Hours(10 weeks)

Target Audience: 3rd and 2nd Year
students of all branches.

(Limited Seats available: 50 seats)

Enrollment Ends: 31st August 2023

Start Date: 5th September 2023

Class Schedule:

4:00 p.m. to 5:30 p.m. two days a
week (Tuesdays and Thursdays).
(Extra college buses to Trissur and
Ernakulam side each will depart at
6:00 pm on these days)

Course Fees: 500/-

*(Amount will be refunded to students who
successfully complete the course)*

**Completion will be counted to-
wards KTU Activity point.**

Brief Introduction on the course

In a world where technology is rapidly advancing, robotics has emerged as one of the most influential and transformative fields of study. From manufacturing and healthcare to exploration and entertainment, robots have found their way into various aspects of our lives, revolutionizing industries and reshaping the future. As we stand at the forefront of this robotic revolution, understanding the "Basics of Robotics" becomes an essential pursuit for anyone seeking to grasp the fundamental principles and applications of this cutting-edge discipline.

This comprehensive course is designed to provide you with a solid foundation in robotics, regardless of your prior knowledge or background. This course will equip you with the essential knowledge and skills needed to embark on an exploration of the core principles that underpin robotics. You will delve into the various types of robots and their applications, from industrial automation to space exploration, and witness how they are revolutionizing industries across the globe.

By the end of this course, you will have acquired a comprehensive understanding of the "Basics of Robotics," empowering you to explore further advancements, tackle real-world challenges, and contribute to the development of the exciting field of robotics. The second Add-on course planned in this series will help you to design robots for various applications.

Course Outcomes:

1. Understanding the anatomy of a robotic manipulator.
2. Calculate joint variables for a given position and orientation of end effector.
3. Calculate the joint velocity for a given end effector velocity.
4. Plan a path or trajectory for the end effector of any manipulator.
5. Recommend robotic solutions for automation challenges.

Module-1	Anatomy of a robotic manipulator-links, joints, actuators, sensor classification, controller. Robot configurations.	4 Hrs
Module-2	Robot Kinematics: Forward and inverse kinematics	8 Hrs
Module-3	Velocity Kinematics: The manipulator Jacobian. Robot Dynamics.	6 Hrs
Module-4	Robot Path planning and trajectory planning	6 Hrs
Module-5	Image Processing and Analysis with Vision Systems.	6 Hrs

Course Final Assessment

Prerequisites:

Basic Algebra, Matrix and Determinants

Criteria for successful Completion of the course:

Student should have an attendance of 75% and submitted 80% of the assignments on time.

Final Score : 50 marks for assignment + 50 marks for final assessment test = 100.

Digital Certificates will be awarded to students who get above 45% in the final score with at least 15 marks in final exam.