

Definition of Robotics

Research Subject: Definition of Robotics

Topic: Introduction to the meaning, purpose, and multidisciplinary nature of robotics.

Research Question: What is robotics, which engineering disciplines contribute to it, and why is it considered a multidisciplinary field?

Abstract

Robotics is a multidisciplinary field that combines engineering, computer science, mathematics, and other sciences to design, build, program, and operate robots.

Introduction

Robotics is one of the fastest-growing technological fields and is used in manufacturing, healthcare, agriculture, education, transportation, and space exploration.

Definition

Robotics is the branch of science and engineering concerned with the design, construction, programming, operation, and maintenance of robots.

Purpose

Its purpose is to automate tasks, improve productivity, increase precision, enhance safety, assist humans, and solve real-world problems.

Engineering Disciplines

Mechanical Engineering; Electrical Engineering; Electronics Engineering; Computer Engineering; Computer Science; Artificial Intelligence; Control Engineering; Mechatronics; Materials Engineering; Industrial Engineering.

Why Multidisciplinary

Robotics requires expertise from multiple engineering and scientific disciplines working together to design complete robotic systems.

Conclusion

Robotics combines engineering, science, and technology to create intelligent machines that improve society across many industries.

References

Craig (Introduction to Robotics); Siciliano et al.; Spong; Corke; Russell & Norvig; IEEE Robotics and Automation Society; International Federation of Robotics.