

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Introductions to Robotics course

Session 1

60 minutes session plan

Session objectives:

* To introduce the meaning, terminology and the location of the field of Robotics.

*To explain the practical needs of the human society which require the introduction, development and use of Robots.

*To elaborate on recent areas of human activities which need the use of Robots.

1. Welcome pupils and present the course aims.
2. Discuss the philosophical approach to Robotics and present possible conflicts between humans and Robots.
3. Present the introduction and background to Robotics including terminology and definitions.
4. Explain the reasons for the use of Robots.
5. Summarize the session through class discussions.

Power point Example

NEUROHEADWAY

Neuroscience Into Education



ROBOTICS



ROBOTICS AS A FIELD IS LOCATED AT
THE INTERSECTION OF ENGINEERING ,
PROGRAMMING AND ARTIFICIAL
INTELLIGENCE



Robotics terminology

Robot: *Electro-mechanical device that performs tasks automatically, autonomously or collaboratively.*

Robotics: *Research , development ,design, manufacturing and applications of robots.*

Robot Programming: *The process of creating a set of instructions that tell the Robot how to perform a task.*

Robot Control: *The study and practice of controlling robots including their motions ,navigation and collaborative performances.*

Robotics

What is a **ROBOT** ?

A **ROBOT** is a reprogrammable, multifunctional structure designed to perform a variety of tasks.



Industrial Robot



Agricultural Robot



Medical Robot

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Advantages and disadvantages of using robots in our life

Advantages of robots

The robots can perform the tasks faster than the humans and much more consistently and accurately.

Most of robots are automatic so , they can move without any human interference . Robot can entertain us and can help and serve us and perform tasks people are unwilling to do .We can send Robots to dangerous environments such as the deep sea or the war-zones.

The robots can be used in carrying out the repetitive and time-consuming tasks efficiently.

They are able to function without stopping and they can be more productive than the people .Robots can collaborate with people.

Disadvantages of robots

Robots need maintenance to keep them running . It is expensive to make or buy the robots. The software and the auxiliary equipment needed to use with the robot is also expensive.

The storage , access and retrieval of data is not as effective as the human brain . Robots can perform the repetitive tasks for long but they do not get better with experience such as the humans do .

Robots do not think and do not have emotions or conscience

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Why use Robots?

As robots become more advanced and autonomous, they learn how to perform tasks faster and better than humans. Their precision, intelligence and performance levels make them perfect employees for a wide variety of jobs that humans can't afford, are willing or able to do.

Working in Hazardous Environments: *Robots have become increasingly important for investigating, researching and working in hazardous and dangerous environments.*

Remote and Minimally-Invasive Surgery: *Robot-assisted surgery is changing the face of medicine by expanding surgeons capabilities.*

Industrial robots *are capable of performing a wide range of tasks such as machining, assembly packaging, lifting and transporting, installation, painting and welding.*

Space Exploration

Military Services

Commercialized Agriculture

Underwater Exploration