



MedTech: AI and Robots

Explore human robot interaction and enter the fascinating world of robotics and artificial intelligence in healthcare.

If your students are completing the whole of this course online and are not participating in the teacher-led lessons based on it, then they can complete useful and engaging activities based on the content covered. You can choose for your students to complete individual tasks by themselves or encourage group work. Though you may have your own ideas about what your students can do with the course content, we've made things easy for you by suggesting some activities that you can submit to your students below. Instructions for the students can be found later in this document.

Individual student tasks taken from the course

Reflection: Students write a 500 word reflection on what they learned from the course, including anything they might do differently now as a result of their learning, and anything additional they found out from their own reading around the topic. They will submit this reflection as a written essay, podcast or video.

Activity: Students write a reflective piece answering the following questions:

- Do you think there could be a point in the future where robots could look and behave in a way that makes them indistinguishable from humans?
- What impact do you think this could have?

Students can research to inform their answers, and should submit their assignments to the teacher.

Research task: Students research and produce a short individual report. Reports should give recommendations on how robots should be used in clinical settings. Students should research and try to answer the following questions:

- Will robots create a loss of human care?
- Will they enable doctors to provide more of a personal touch to consultations by freeing them from repetitive tasks?

The reports should consider the balance between relieving the burden of work on the clinician, but also maintaining a decent level of human care and respecting human dignity.

Group tasks based on the course

Research task: Half of the groups in the class research the ways in which robots can assist patients, and their advertisement will be aimed at patients. Their research should include the following:

- Exoskeletons
- Robots as caregivers
- Therapy chatbot

The other half research the ways in which robots can assist clinicians, and their advertisement will be aimed at clinicians. Their research should include the following:

- Surgical applications for robots/AI
- Diagnostics using robots/AI
- Health apps

Each group should create a leaflet, poster, video (storyboard), or any other creative media they wish, to advertise medical robots to either patients or clinicians. Groups then share their adverts with each other.

Discussion task: Groups discuss the following question:

- Would you feel comfortable trusting AI to diagnose an illness and recommend care for you?

Each group should record some points for and against, and submit these to the teacher.

Collaborative task: Using information from the course and the internet to research, groups create a timeline which shows the progression of AI and robots in medicine. Each group should share their timeline with the others. Groups may then view the timeline in Step 1.5 and compare it with their own.

Additional support

You can use the [How to use FutureLearn guide](#) with your students to get them started. There is also a school-facing [Guide to safeguarding and security on FutureLearn](#) if you need it.

Test

You can use the test questions listed in the student instructions below as a short assessment to enable your students to demonstrate what they have learned on the course. The assessment has 15 marks in total.

The questions have been designed to be flexible and open. The questions indicate which steps the answers can be found on. The marks available reflect the likely length and complexity of the answer expected, and how many points they are likely to make. For example, a 5-mark question might reflect a longer, more complex question, or one where they have asked to describe or explain a number of elements. Depending on the level and ability of your students, you can decide how you wish to award the marks so they are appropriate for your class.

Each question suggests which steps the students may wish to return to answer the questions. **You can decide if you want to include this information when you share the assessment with your students.**

Student instructions

Reflection

Write a 500 word reflection of what you have learned from the course. It should include anything you might do differently now because of what you learned, and anything additional you found out in your reading around the topic. Submit this reflection to your teacher as a written essay, podcast or video.

Activity

Write a reflective piece answering the following questions:

- Do you think there could be a point in the future where robots could look and behave in a way that makes them indistinguishable from humans?
- What impact do you think this could have?

You can research to inform your answers, and submit your assignments to your teacher.

Research task

Research and produce a short individual report. Your report should give recommendations on how robots should be used in clinical settings. You should answer the following questions:

- Will robots create a loss of human care?
- Will they enable doctors to provide more of a personal touch to consultations by freeing them from repetitive tasks?

Your report should consider the balance between relieving the burden of work on the clinician, but also maintaining a decent level of human care and respecting human dignity.

Group discussion

In your groups, discuss the following question:

- Would you feel comfortable trusting AI to diagnose an illness and recommend care for you?

Record a few points for and against, and submit these to your teacher.

Group research task

Your group will research one of the following two options (your teacher will specify which one):

1. The ways in which robots can assist patients, and their advertisement will be aimed at patients. Your research should include the following:

- Exoskeletons
- Robots as caregivers
- Therapy chatbot

2. The ways in which robots can assist clinicians, and their advertisement will be aimed at clinicians. Your research should include the following:

- Surgical applications for robots/AI
- Diagnostics using robots/AI
- Health apps

Your group should create a leaflet, poster, video (storyboard), or any other creative media you wish, to advertise medical robots to either patients or clinicians. Groups will then share their adverts with each other.

Group collaborative task

Using information from the course and the internet to research, your group should create a timeline which shows the progression of AI and robots in medicine. Each group will share their timeline with the others. You may then view the timeline in Step 1.5 and compare it with your own.

Test

Complete the assessment questions below to demonstrate your understanding of the course. You can refer back to the course to find the answers or more detail as you need to. You should not however share your answers with other students.

Your answers should be written in full sentences and be appropriately detailed. Make sure you read the questions carefully before starting to answer. Each question shows how many marks are available – use this to guide how much detail or how many points you need to include.

[The questions also indicate where you can start to look to find the answer. You can also include information from other steps if that is relevant.]

1. Explain four ways in which robots and AI can be used in healthcare. (4 marks) [Step 1.2]

2. Name three important events in the history of medical robots. (3 marks) [Step 1.5]

3. Suggest three ways in which robots and AI can assist patients. (3 marks) [Step 2.2]

4. Suggest three ways in which robots and AI can assist patients. (3 marks) [Step 2.8]

5. What are two important concerns or disadvantages of using robots and AI in medicine? [Step 2.13]