



**Maynooth
University**

National University
of Ireland Maynooth

BSc in Robotics & Intelligent Devices

Year 2

**SEMESTER 1
2017-2018**

**Intelligent & Connected Machines in Society
EE220**

Prof. Ronan Farrell

Time allowed: 2 hours

Answer *all* questions.

QUESTION 1 (60 Marks)

For each of the following questions, write brief answers. Answers should typically be between 40 and 100 words.

八题重复: a b c d f h j k

- (a) Briefly describe the four types of human or operator induced failure and in a case of liability, who would be responsible in each case. (5 marks)
- (b) List and explain the different fault management strategies that should be used to prevent failures. (5 marks)
- (c) Explain what is meant by responsibility, and why it is important. (5 marks)
- (d) Explain the “Principle of Ontogeny Non-Discrimination” and why it is relevant to the issue of autonomous machines. (5 marks)
- S6 46–47 (e) Intelligent machines can be deliberately confused. Discuss the implications of this for autonomous machines. (5 marks)
- (f) Discuss the issues around “If drunk, do you have the legal authority to authorise a self-driving car to take you home?” (5 marks)
- S8 (g) List and explain the key features that are said to be relevant in making a robot or a machine “likeable”. (5 marks)
- (h) Explain the differences in perception for smooth rounded objects and sharp-pointy objects. What impact does this have? (5 marks)
- S3 (i) What is the difference between a fault and a failure? (5 marks)
- (j) What is meant by the concept “Deep Stupidity”? (5 marks)
- (k) Explain the concepts of autonomous and semi-autonomous machines. (5 marks)
- S7 (l) Explain what is required by the EU General Data Protection Regulation? What does the policy say about collecting and storing data about children? What is the issue around consent and children. (5 marks)

QUESTION 2 (40 Marks)

Write an essay on *one* of the following topics.

(40 marks)

- The nature of employment in a future of intelligent automation. Ensure that in your discussion you provide at least three examples of jobs that are likely to disappear and those that are likely to remain (six job examples in total). Provide reasons for your selection.

OR

- Trust in Autonomous machines in society. In your essay focus on issues that may result in a lack of trust or increased concern about the responsibility awarded to an autonomous device. This is a multi-faceted problem so provide multiple reasons for this issue and the context in which trust is an issue. Ensure that you provide examples to highlight your answers. Discussions of militarised autonomous systems are not acceptable.

OR

- On connected technologies – focusing on the services that continuous connectivity can provide; the issues around intrusiveness; and the reliability of systems that are dependent on a connection to the internet and some distant data server. Ensure that in your essay you provide examples of at least one connected product and describe the data that they collect and the reliability of that product in the absence of an internet connection.

This must be a substantive essay. It should contain between 1000 and 2000 words (approximately 4-6 pages). Marks will be provided for both the validity of the content, the structure and quality of the essay.