

4: Communications and Sensors Assignments

The Communications and sensors module of the MSc consists of 4 assessed elements

	Assessed element			Date issued	Date due
4.1	Multiple Choice Questions - paper 1	40 questions in 1 hour, open book	25%	Thu 11 Feb-21	Fri 19-Feb-21
4.2	Multiple Choice Questions - paper 2	40 questions in 1 hour, open book	25%	Thu 25 Mar-21	Thu 01-Apr-21
4.3	Choose 1 of 8 Topics - individual report	3,000 words report	25%	Wed 10 Feb-21	Fri 09-Apr-21
4.4	On same topic - 1 Page Poster	1 page poster	25%	Wed 10 Feb-21	Thu 18-Mar-21

Topical report and poster (4.3 and 4.4)

Due to the COVID pandemic it has been necessary to modify the assessment process so that assessments are individual rather than in groups.

Choose one of the following topics and prepare a 3,000-word report and a one-page poster:

- Drone detection and mitigation
- Walk and talk
- Passive radar
- Coherent Change Detection
- Through-wall radar
- 5G
- Power source technology
- Small satellites

Aspects you may wish to consider are:

- Explanation of physical principles
- History of development
- Current capability
- Operational utility
- Future prospects

The topics were first proposed to students at the Lecture on 10 February.

Hugh is proposing to discuss the posters in week 10, with some students giving a short presentation, though marks are awarded only for the poster and not for the presentation.

Poster Design - Frequently Asked Questions and Answers

These FAQs were originally produced in support of the Designing for Protective Security module for which required a poster on a SWOT analysis as per this example poster.

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SWOT Analysis- Using CCTV for Protective Security Surveillance

Closed-circuit television (CCTV) is a form of video surveillance where signals are transmitted to a limit set of monitors.

STRENGTHS

- CCTV can provide surveillance of specific areas of risk.
- Can identify illegal activities both in real time and via recorded images.
- Images can be copied and captured and used as evidence in a court of law.
- If used overtly, they can act as a deterrent.
- If used covertly, they can be useful in detecting illegal activity.
- Different types of camera offer flexibility in terms of who is, and who imagines themselves to be, under observation (e.g. pan tilt zoom, fixed, dome).
- Tried and tested in terms of effectiveness (see Welsh and Farrington (2009)).

WEAKNESSES

- Can be expensive. Costs include:
 1. System installation and maintenance
 2. Operating costs (control room, staffing and power requirements) (Milton Keynes Council, 2015).
- If incorrectly installed or maintained, CCTV may fail to produce images of sufficient quality to use as intelligence or evidence.
- Can cause issues in terms of public perception of personal safety and of privacy rights.
- Can be less mobile than other forms of surveillance (e.g. UAVs).

OPPORTUNITIES

- CCTV function can be flexible- it can deter and detect many types of protective security threat (e.g. infrastructure attacks, crowded places).
- It can also help with live response planning, leading to more efficient resource deployment (e.g. assisting with targeting tactics which delay or mitigate).
- Many UK public areas already have CCTV coverage (The BSIA (2015) estimated a maximum of one camera for every 11 people). This makes it a convenient tool for National Security operations.
- If images are recorded and stored, it is possible to use non-live incidents for intelligence gathering and response planning.

THREATS

- System failures caused by accident or design will reduce effectiveness.
- Black spots in camera coverage can be problematic.
- Systems without Uninterruptable Power Supply (UPS) back-up will be more vulnerable.
- Hostile actors could access CCTV (transmission can be wireless).
- Image quality can decline in adverse environments. Weather, lighting conditions and occlusions such as trees can all have impacts.

 - Impacts depend on context. Evidence for crime (see Figure) suggests better performance in car parks than housing estates.

References: Welsh, Brandon C. and Farrington, David P. (2009) 'Public Area CCTV and Crime Prevention: An Updated Systematic Review and Meta-Analysis', Justice Quarterly, 26: 4, 716 – 745
Milton Keynes Council (2015) Report of the Closed Circuit Television (CCTV) Review Group, Milton Keynes Council, UK.
British Security Industry Association (BSIA) (2015) The Picture Is Not Clear: How Many CCTV Surveillance Cameras Are There in the UK?

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In general:

- it's good to use bullet points in the text,
- not too many words (the example here is about right) and
- to include pictures, diagrams or even graphs to support the key points.
- The poster can be either portrait or landscape format.
- The assessment is 50% for how well the poster puts over the technical issues, and 50% for the style/attractiveness.
- Don't put your name - just student number
- Referencing should be made in text and if you wish, a full reference list can be provided. There is no prescribed referencing style (APA is most common) but it is recommended that referencing style is kept consistent.

Q; What size should the poster be? A4 or larger?

This doesn't matter for this year as we won't be printing these out. As long as the final poster is clear as a pdf file or similar that is fine. It can be either portrait or landscape in design,

Q: If my design uses tables, what sort of data sources should be used?

This will depend on what sort of relevant data a search for information brings up. Sometimes, the data used in the figure can be taken straight from a referenced paper. However, it may be that the paper didn't have the data in a convenient format for the poster, so use the data from this source and constructed your own figure. It might be that for the particular example you use in your poster, there is no data you can find that is relevant to an argument you make. You might find other types of data or information on your measure that would be well summarised in table or figure format.

Q: Should the posters have tables or only the essay?

The same is true of your essays. If you want to use tables to summarise information, feel free- but this is not a requirement.

Please note that words used in tables **do** count towards the overall wordcount (in both the poster and the essay).

Q: What format – hard copy or digital are required?

Only electronic versions of the posters are required (pdfs, word documents etc).

Q: are 3rd party/stock photos/diagrams allowed? Are there any restrictions/requirements around their use?

I would suggest that they can use stock photos or images as long as they are creative commons (i.e. free for public use with no copyright restrictions). This is because they might want to have a picture of their technologies or measures to illustrate. I used a stock photo of a CCTV camera on my example poster. With anything extracted from a publication (like a screenshot of a table or figure) they would need to acknowledge the source with a proper reference. Often it is better visually to produce tables/figures yourself- but even in this case it is important to acknowledge any source document.

Q: Will we be presenting the posters?

Not this time. Students should submit their poster to the lowside msc shared mailbox msc@ocsa.gov.uk by close on Thursday 18 March.

Don't forget to cite your student number, and include it in the document name.

Q: Should the references be on the single page of the poster or can the references be put on a separate page? So for example it might say (Orwell, 1984) in the text and Orwell, G: 1984, <publisher>, <year> in the references.

Yes- as a minimum, students need to put in an in-text references such as (Orwell, 1984). If they want, they can fit the full reference on the poster or send them as a separate sheet. The idea is that they acknowledge the sources- if they don't manage to get the full references to me that is ok.