

CL135 Engineering & Society

Assessment for Learning Coursework (20% weighting)

International Poster

Rationale:

One often has to negotiate a Contract in a foreign land, in English, with people whose mother tongue is totally different. This brings forth complications in understanding each other, and often anecdotal circumstances, which could have been overcome through the knowledge of another language, of people's habits and custom, as well as their mentality. (Sehnaoui, 2003, p.86)

Sehnaoui, E.A.(2003). *Business Wisdom: Handbook and Guide for Civil Engineers and Architects*, Twickenham: Athena Press.

Purpose:

To provide an opportunity for home and international students to engage and, by doing so, home students learn about cultures different to their own and both groups benefit by learning from each other (Universities UK, 2021, 58).

Universities UK (2021) Internationalisation at home - developing global citizens without travel: Showcasing Impactful Programmes, Benefits and Good Practice, <https://www.universitiesuk.ac.uk/sites/default/files/field/downloads/2022-07/Internationalisation-at-home-report.pdf>

Relevance:

The coursework aims to provide you with new knowledge and skills (Intercultural Competence) that are consistent with the United Nations Sustainable Development Goal 4 Quality Education-Target 4.7 Education for Sustainable Development & Global Citizenship.

Aims:

- To provide a learning space for first-year undergraduates to engage in collaborative peer learning and socialise with students from different countries.
- To promote, recognise and reward intercultural engagement and the development of Intercultural Competence (IC).
- To assist the creation of explicit knowledge related to the design & construction of civil engineering buildings and structures.
- To promote a 'global engineering mind-set' amongst students and to raise their awareness of a civil engineer's role in the United Nations Sustainable Development Goals (UN SDG's).

Tasks

1. A group poster with annotated sketches of building & structures situated in your international mentor's home country (10% weighting).
2. An individual two-page reflective writing report based on your experience undertaking the coursework (10% weighting).

Task 1 Group International Poster (10% weighting)

In your CL135 group you are required to consult with your international mentor and investigate civil engineering (buildings & structures) in the mentor's home country. Each student should select a different example. These can be historical projects, current projects or projects planned for the future, particularly those projects that are addressing the climate emergency. (Please see guidance below on information mining international civil engineering projects).

Civil Engineering is an expansive industry with projects across many subdisciplines (i.e. Bridges, Buildings, Coastal & Marine, Environmental, Geotechnical, Highways, Power including Renewables. You can information mine what civil engineers do @ <https://www.ice.org.uk/what-is-civil-engineering/what-do-civil-engineers-do>

On undertaking research, you will find words and terms that are unfamiliar. These dictionaries are available from our university library.

Blockley, D. (2005). The New Penguin Dictionary of Civil Engineering, London: Penguin.

Gorse, C.A., Johnston, D and Pritchard, M. (2020). A Dictionary of Construction, Surveying, and Civil Engineering, 2nd Edit, Oxford: Oxford University Press. (Online access).

Carnegie Mellon University Group Working Evaluation documents.

Prior to meeting your mentor, the group should arrange a meeting and familiarise yourselves with the Carnegie Mellon University Group working evaluation documents (Available on CL305 My Place) and, as a group, complete the No.1 (Team Contract Document). Consider the team roles in document No.2.

1. Team Contract.docx
2. Team Roles.doc
3. Self Eval- Form.docx
4. Group Process-Evaluation Form.docx
5. Peer Eval-GroupWork-formsample1.docx

After the meetings with your mentor, and on completion of your poster please complete No 3 (Self- Evaluation Form) & No.5 (Peer Evaluation Group Form).

Come back together as a group and complete No.4 (Group Evaluation Form). You will need to reach agreement as a group as to how you answer the questions). Save a copy of each document for use in completing Task 2.

Civil Engineering and the UN SDG's

You are encouraged to consider a wide spectrum of civil engineering practice and how the design & construction of building & structures relates to the UN SDG's. As climate change has intensified civil engineers are designing & constructing projects to be resilient to extreme weather events, for humanitarian objectives, to mitigate water scarcity, and to reduce carbon emissions from the construction and use of the buildings & structures. The Institution of Civil Engineers (ICE, 2024) have examined the SDG's that civil engineers could have the greatest impact on. You should consider this information in relation to your international mentors' home country and discuss this with them.

Institution of Civil Engineers. (2024). State of the Nation; Infrastructure in 2024, <https://www.ice.org.uk/media/0uldqt1j/state-of-the-nation-infrastructure-in-2024.pdf>

Culture & Customs

Your international mentor has volunteered to assist you and has set time aside to do this. Please be professional and timely in your communications with your peers, and your mentor. The role of your international mentor is to provide general tourist type guidance on their home country (culture / customs / life) and some ideas for research on civil engineering buildings & structures in their home country. Please be curious about your mentor's country and their experience, and at all times, considerate and tactful when discussing issues related to the UN SDG's. Please consider that your international mentor may have a 'different outlook' on various issues. Home students may be required to reevaluate a West-centric lens on ethical issues and civil engineering practice in foreign countries.

Submission

Each student is required to undertake research on one or more building(s) or structure(s) in their international mentor's home country and provide a sketch(s) of an appropriate example of construction technology (vis-a-vis a Plan, Section, Elevation) as a contribution to the group poster (Group poster size should be A1 Landscape). Your sketch should be annotated with information that conveys new learning on the design and construction of buildings and / or structures. You will need to collaborate with your peers to ensure you assemble a poster (i.e. poster background, colouring, text font) that conveys a coordinated group effort.

On completion, uploaded a digital copy of the group poster to My Place. Hard copies (Please see university print office below) will be displayed in class and each group is required to present their poster to their peers. The university Print Services can print your A1 poster at a small cost (<https://www.strath.ac.uk/printservices/studentprinting/>).

Information Mining International Civil Engineering Projects

- Undertake a general web search using "civil engineering projects in ~~~~~" (insert your country!).
- Use the library electronic journal resources such as:
 - ICE Virtual Library including *Proceedings of the Institution of Civil Engineering*
 - The Structural Engineer*
 - Structural Engineering International*
- Industry publications such as *New Civil Engineer* / *Arup Journal*.
- Civil engineering employers. Case study projects webpages (consultants & contractors) who undertake international work. i.e. <https://www.arcadis.com/en-gb/projects/australia/melbourne-metro-tunnel-project>
- Newspapers / YouTube / Television / University Planet eStream videos.

Assessment Criteria:

Your group poster will be assessed 'in the round'. Does it convey a group effort and is the overall presentation (layout, graphics, text) consistent with the professional communication skills expected of first-year engineering students. Checking your own work, and that of your peers is an essential skill for engineers. Making a judgement of what is representative of a poster submission in higher education, compared to secondary school, should be part of your quality assurance check on your final product. Before undertaking your poster, and prior to submission please consider the following criteria:

- Logic- degree of group cohesiveness as expressed in professional layout & flow.
- Aesthetics - visually pleasing / colour and text.
- Sketching- as a sufficient aid to demonstrate key aspects of buildings & structures.
- Information mining & annotated text-evidence of associate information mining and appropriate use of text.
- Creativity-evidence of synergy, representation of the country in graphics /colours

Task 2 Individual reflective Report (10% weighting)

You are required to write a two-page reflective report that documents your 'sense-making' of completing the poster coursework. Prior to starting, you should consult the links below. This will ensure that you understand the purpose of this task, and will help to make you more comfortable when you start to write.

The coursework is an 'Assessment for learning'. Looking back on your involvement in the coursework, are there lessons for you to take forward into your studies? Did participating make you think about your prior assumptions, beliefs, and motives? How did the group perform and what of the Carnegie Mellon University Group working evaluation documents? In what way has your discussions with an international student influenced you? Did you think that the coursework allowed you to consider the UN SDG's? What do you think about the requirement to undertake sketching? Did you improve your communications skills? Did you encounter any problems, how did you (peers) overcome them?

Your report should contain only a small amount of descriptive text and the aim is to demonstrate that you have begun to 'think about your thinking' (metacognition) and can explore and analyse your learning journey. You should write your report in first-person.

Before you start to write you should consult guidance on reflective writing:

-University of Hull- Overview of reflective writing-
<https://libguides.hull.ac.uk/reflectivewriting/vsummary>

-University of Melbourne-Advice on how to write reflectively
<https://students.unimelb.edu.au/academic-skills/explore-our-resources/developing-an-academic-writing-style/reflective-writing>

Gibbs' Reflective Cycle

<https://www.ed.ac.uk/reflection/reflectors-toolkit/reflecting-on-experience/gibbs-reflective-cycle>

Your report structure should be written in first-person and comply with the following requirements.

- Normal Margins set (2.54cm).
- Arial 12-point text & 1.5 spacing.
- 12 Point break between paragraphs.
- Headings & Subheadings where appropriate.
- Harvard Referencing for citations and reference where appropriate.

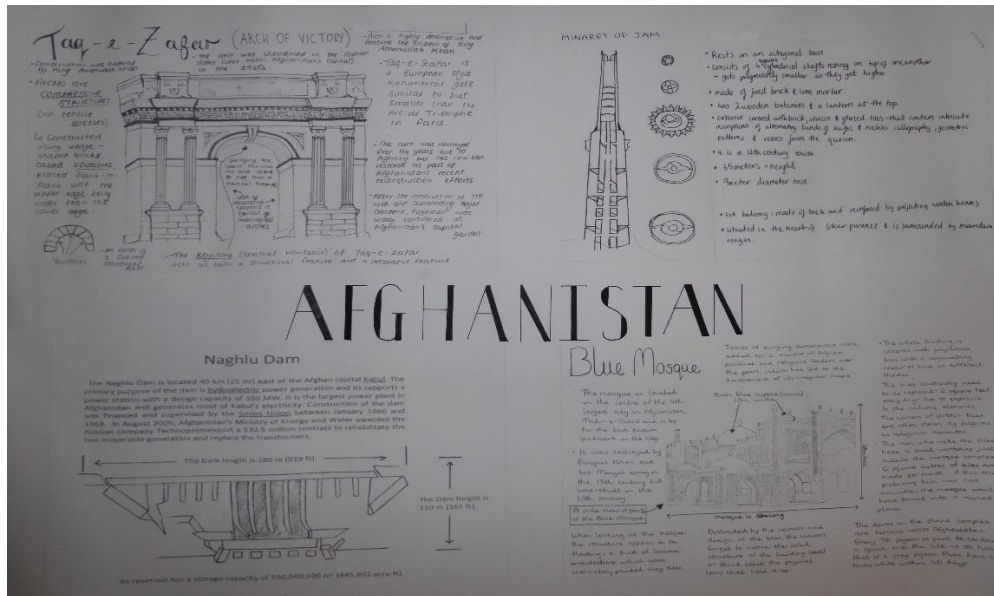
Assessment Criteria:

Your two-page reflective report will be assessed using the rubric below. As with your poster, your report will be considered 'in the round' and will be graded to reflect your journey towards 'becoming a reflective practitioner'.

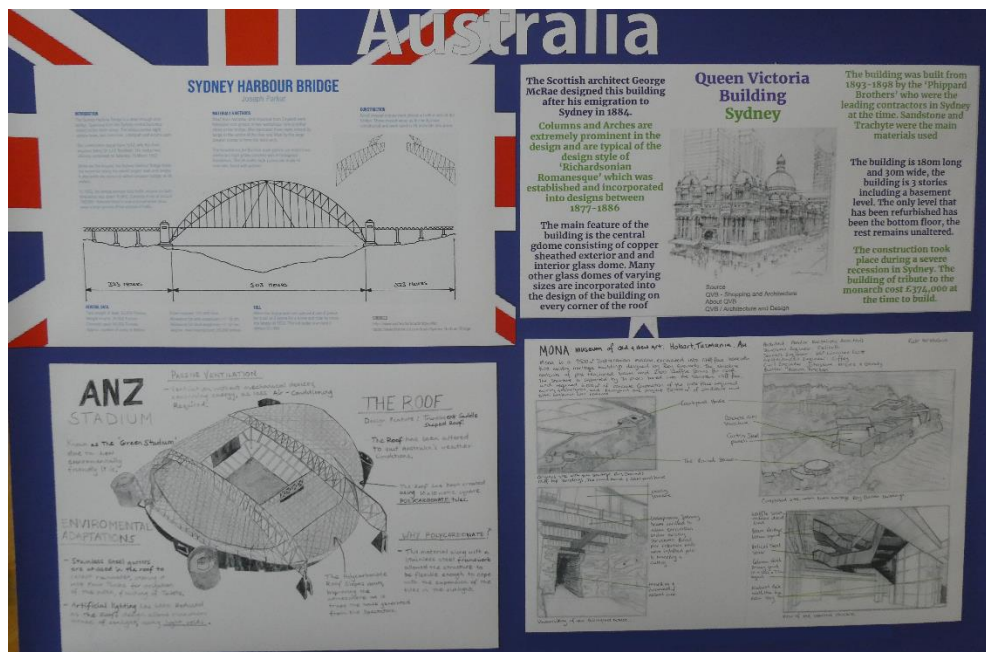
From: Jones, S. (n.d.) Using reflection for assessment. Office of Service Learning, IUPUI. (Link to PDF on external site), Cited In <https://www.ed.ac.uk/reflection/facilitators-toolkit/assessment/rubrics>

Criterion\Level	Unacceptable	Reflective novice	Aware practitioner	Reflective practitioner
Clarity	Language is unclear and confusing throughout. Concepts are either not discussed or are presented inaccurately.	There are frequent lapses in clarity and accuracy	Minor, infrequent lapses in clarity and accuracy.	The language is clear and expressive. The reader can create a mental picture of the situation being described. Abstract concepts are explained accurately. Explanation of concepts makes sense to an uninformed reader.
Relevance	Most of the reflection is irrelevant to student and/or course learning goals.	Student makes attempts to demonstrate relevance, but the relevance is unclear to the reader.	The learning experience being reflected upon is relevant and meaningful to student and course learning goals.	The learning experience being reflected upon is relevant and meaningful to student and course learning goals.
Analysis	Reflection does not move beyond description of the learning experience(s).	Student makes attempts at applying the learning experience to understanding of self, others, and/or course concepts but fails to demonstrate depth of analysis.	The reflection demonstrates student attempts to analyse the experience but analysis lacks depth.	The reflection moves beyond simple description of the experience to an analysis of how the experience contributed to student understanding of self, others, and/or course concepts.
Interconnections	No attempt to demonstrate connections to previous learning or experience.	There is little to no attempt to demonstrate connections between the learning experience and previous other personal and/or learning experiences.	The reflection demonstrates connections between the experience and material from other courses; past experience; and/or personal goals.	The reflection demonstrates connections between the experience and material from other courses; past experience; and/or personal goals.
Self-criticism	Not attempt at self-criticism.	There is some attempt at self-criticism, but the self-reflection fails to demonstrate a new awareness of personal biases, etc.	The reflection demonstrates ability of the student to question their own biases, stereotypes, preconceptions.	The reflection demonstrates ability of the student to question their own biases, stereotypes, preconceptions, and/or assumptions and define new modes of thinking as a result.

Example Posters



Comment: Good sketches, too much text, text size and font needs to be unified, would benefit from some colour.



Comment: Good use of background image, good sketches, too much text, text size, font, colouring needs to be unified.

Badshahi Mosque

The mosque was Commissioned by the Mughal Emperor, Aurangzeb in 1673, with construction being completed only two years later in 1675. The process of construction was overseen by Aurangzeb's foster brother, Mumtaz Husain.

Design was heavily influenced by Persian architecture.

It features a two stories high and the walls were cleverly concealed by using small bricks assembled along line masonry and finally faced using red sand stone.

15th largest mosque in the world, at 40m high. It is also the 2nd largest mosque in South Asia.

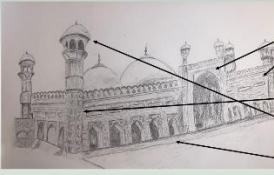

The mosque has 4 major minarets, 4 minor minarets and 5 domes. The 4 major minarets stand tall at 176m and 176m high. Each minaret is topped with a marble canopy.

The Badshahi mosque held the title of the worlds largest mosque for 113 years.

Square footage of 2,70,000 square feet.


Located in the province of Punjab.

One of Pakistan's most famous landmarks.

One of the many minarets

Minar-e-Pakistan

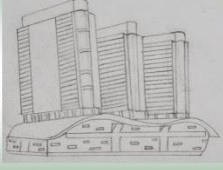


- The total height of the structure is around 70m, with the base being 8 metres above the ground and the tower rising 62 metres on the base. It has a diameter of 9.75 metres.
- The project took 8 years to complete, costing around Rs 7,058,000. The revenue collected to build the structure was collected by placing extra taxes on cinema tickets and horse races.
- The base is made up of 4 platforms and they are built with different stone.
- It is in the city of Lahore.
- The structure was built with reinforced concrete, while the walls and floors are rendered in marble and stone.
- Materials like concrete and steel are used from the base to 55m height and the top bit of the building is built with stainless steel so it does not corrode.
- The base of the structure has 50 marble slabs all around it. Each being 2 metres high and 0.6 metres wide, with 99 names of Allah written on them.


Buildings of Pakistan

The Centaurus

construction so far



The original design included a four-tower structure which would house a 36-storey luxury hotel. The construction of this was put on hold as the investor did not want to construct it and instead wanted to convert the office block into a hotel, deviating from the original approved design. This request was denied.



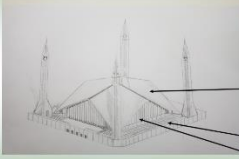
What the roof was designed to be able to capture rain water. It also adds to the unique look of the structure.

High specification glazing used for the many windows to allow look of light in, whilst conserving energy.

- Construction began in 2005 and is still under construction. It opened in 2013.
- Consists of a 5 storey shopping mall and three 23 storey towers, two of which are apartments and the other is an office block.
- Has a 4 storey basement car park.
- Estimated cost of US\$500 million.
- Designed by UK firm HOK.
- Located in Islamabad, Pakistan's capital city.
- Designed to resist imposed loads such as up to magnitude 9 earthquakes.
- Medical floors help to dissipate the load throughout the structure.
- Around 300m tall.

Faisal Mosque

Sketch



Description

- Built in 1986.
- Cost = 120 Million USD
- Height = 90m (300ft)
- Located in Islamabad
- Mainly used reinforced concrete
- 4 minarets at corners (tallest minarets in South Asia)
- 8 sized giant shells are thin curved slabs (reinforce concrete)
- Giant shells = aesthetic + unique look
- Carries and distribute the weight of the load.
- Hinged beams and cross beams that transmit the load to the girders.
- White marble is used for the floors - good heat resistant.
- Closetary was constructed for ventilation.
- Transparent glass for sunlight.

Comment: Good use of background colour (consider partial national flag as Australia above), good sketches, reduce the amount of text and increase size to convey key information only.