Design Brief

DECO3200: Interactive Product Design Studio

Semester 2, 2019

THE UNIVERSITY OF SYDNEY

DESIGN BRIEF
DECO3200: Interactive Product Design Studio

Semester 2, 2019 | 12 credit points

This document contains the detailed assessment guidelines for DECO3200 Interactive Product Design Studio. It is the official version of the assessment, describing the aims, tasks and deliverables for each assessment item, together with expected workload, due dates, submission instructions, assessment criteria and accompanying grade descriptors for standards-based assessment. The document should be read in conjunction with the DECO3200 Unit of Study outline. Any clarifications to the assessment will be posted on the Canvas site (http://canvas.sydney.edu.au/) during semester.

1. Design Brief Streams

Assessments 1 to 3 are group-based. Therefore, you are required to form **small teams of 4 (preferred) to 5 people** to tackle these. Group work is important as it reflects the reality of design agencies. Being able to negotiate and discuss ideas within a team is an important skill and one of the learning outcomes of this studio. Working with other team members further supports the brainstorming and concept generation process. Use your team partners as a resource, to bounce off ideas and to get critical feedback on your design ideas before putting them in front of users. Each member of your team should bring a unique strength to the project, while also being able to help in other areas as required. At the end of the unit you and your team will have produced a functional prototype that can be displayed at the end of year grad show. Alongside this, you will also have design documents and videos showcasing this work, which can be used in your portfolio.

To add variety to the deliverables from each team, the design brief is broken into four distinct streams managed by an individual studio tutor. The streams all share the same marking criteria.

Student teams will need to settle on a design brief stream within the first two weeks of class. To keep an equal balance of teams per studio tutor, teams will need to list their design brief preferences. Be aware that your team may not end up being assigned its first preference. Please see the stream descriptions below.

Design Brief A: Augmenting Urban Experiences

Supervised by Callum Parker

Falling hardware costs and smaller computing form factors have led to digital technologies increasingly augmenting modern society. Cities have been affected by these advances evidenced by the increasing amount of embedded technologies such as sensors and displays. The purpose of technologies within cities is to automate a process (such as walking upstairs, turning on lights, etc), collect information (the amount of people within a space at different times, traffic density, etc) or to present information (primarily advertising). However, technologies can be utilised for purposes other than this such as engaging individuals on topics that interest them and can also help them better connect to the local community in which they are situated.

This design project is future thinking as it is focused towards designing new interactions or applications to engage citizens on issues that are relevant to them within an urban environment. You are required to conceptualise, design and prototype a digital technology or application that provides citizens or communities relevant information about the location in which they are situated. More specifically, your designs and final prototype will need to incorporate the requirements below.

Topic areas (negotiable):

- A system that collects and visualises feedback about the transport options to the University.
- Information for navigating around the University and its landmarks.
- Student generated news and information feed – think community noticeboard 2.0.
- Empowerment of disadvantaged or marginalised communities.

Create a prototype that is:

- Interactive.
- Visualises information about the space and/or community.
- For use in a public space.

Suggested Readings

1. Martin Tomitsch. 2018. Making Cities Smarter: Designing Interactive Urban Applications. Jovis Verlag GmbH, Berlin.

2. Tomitsch, M., Wrigley, C., Borthwick, M., Ahmadpour, N., Frawley, J., Kocaballi, B., Nunez-Pacheco, C., Straker, K., & Loke, L. (2018). Design. Think. Make. Break. Repeat. A handbook of methods. BIS publishers.

3. Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction design: beyond human-computer interaction. John Wiley & Sons.

4. Parker, C., Tomitsch, M., & Kay, J. (2018). Does the Public Still Look at Public Displays?: A Field Observation of Public Displays in the Wild. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 2(2), 73.

5. Aurigi, A., & De Cindio, F. (Eds.). (2008). Augmented urban spaces: articulating the physical and electronic city. Ashgate Publishing, Ltd.

Design Brief B: Enhancing pedestrian experience in cities

Supervised by David Zhou

Street crossing is a part of our daily lives, it does not sound very exciting; conversely, waiting at a traffic light to cross the street can be boring and frustrating. Zebra crossings and pedestrian traffic lights are both common types of crossing facilities in most countries but have not been updated for a long time since first introduced in the 1940s. Today, we have opportunities to adopt smart technologies into the urban environment and enhance the quality of lives. For example, sensors attached on the shoes of pedestrians can detect if they can safely cross the road or not and send notifications to their smartphone; whereas pedestrian lights can be installed in the ground, so people can still notice the traffic lights have changed when they are looking at smartphones. These examples show that pedestrian experience in cities can be improved by applying interactive technologies in different ways.

For this brief you are required to conceptualise, design and prototype a digital technology or application that connects pedestrians to the road environment. More specifically, your designs and final prototype will need to incorporate the requirements below.

Topic areas (negotiable):

- a system that encourages pedestrians to use the crossing facilities rather than jaywalking.
- a system that helps pedestrians to make decisions to cross unregulated crossings.
- new crossing facilities that make pedestrians feel safe to cross the road at night.

Design/Prototype attributes:

- Interactive.

- For use in environments with pedestrians – i.e. city streets, crossings, footpaths, etc.

Suggested Readings

1. Martin Tomitsch. 2018. Making Cities Smarter: Designing Interactive Urban Applications. Jovis Verlag GmbH, Berlin.
2. https://www.who.int/roadsafety/projects/manuals/pedestrian/en/
3. https://roadsafety.transport.nsw.gov.au/stayingsafe/pedestrians/tips/index.html
4. https://www.youtube.com/watch?v=g5Cc7amddGs

Design Brief C: Improving accessibility in cities

Supervised by Tina Yao

It is estimated that over 4 million or 20% people in Australia have some form of disability. As a result, it has become increasingly important that cities are built with accessibility in mind to make sure that people with disabilities are feeling inclusive within the community. In order to achieve this, there is a shift in the world towards the concept of universal design. It is a broad term that is defined as "*simply designing all products, buildings and exterior spaces to be usable by all people to the greatest extent possible*". This concept can be seen applied in the field of urban planning, such as the design of step-free stations, low floor buses and dropped kerbs. However, it is important to note that we are still miles away from achieving universal accessibility. Instead, we need to go beyond just removing the architectural barriers but consider ways the inclusiveness of cities can be enhanced.

For this brief, you are required to work on a prototype for improving accessibility or inclusiveness in cities. More specifically this prototype should be focused on one of the following areas (negotiable):

- improving access to existing services or facilities
- providing information for people with disability
- raising awareness of disabilities within a local community.
- providing information to help people with disabilities plan their journeys within a city.
- re-design and re-think existing interactions with an existing type of service (e.g. ticket machine), so that it is more accessible for people with disabilities.

Design/Prototype attributes:

- Interactive.
- Targeting a specific disability (i.e. vision impairment, wheelchair user, etc).

Suggested Readings

1. Martin Tomitsch. 2018. Making Cities Smarter: Designing Interactive Urban Applications. Jovis Verlag GmbH, Berlin.

2. Australian Government Department of Foreign Affairs and Trade. (2013). Accessibility Design Guide: Universal design principles for Australia's aid program. Australian Government Department of Foreign Affairs and Trade.

3. Deane, K. (2012). SHUT OUT: The Experience of People with Disabilities and their Families in Australia. Australian Government Department of Social Services.

4. Manzoor, M., & Vimarlund, V. (2018). Digital technologies for social inclusion of individuals with disabilities. Health and Technology, 377-390.

5. Noonan, T. (2007). The Overlooked Consumers – 20% of the Australian Population with Disabilities and Older People. Australian Human Rights Commission.

6. Williams, G. H. (2012). Disability, Universal Design, and the Digital Humanities. In M. K. Gold, Debates in the Digital Humanities. University of Minnesota Press.

2. Assessment Tasks Overview

The assessment in this studio is divided into five items.

Assessment Item	Work Type	Weight	Due	Assessment Criteria
Assessment 1 Concept Proposal and Pitch	Group	20%	26 Aug @ 23:59, 2019	A, C, D, G, H
Assessment 2 Design Report	Group	30%	23 Sep @ 23:59, 2019	B, C, D, F, G, H
Assessment 3 Final Product and Documentation	Group	30%	4 Nov @ 23:59, 2019	D, E, F, G, H
Assessment 4 Portfolio	Individual	10%	11 Nov @ 23:59, 2019	G
Weekly reflective entries	Individual	10%	Continuously Assessed	I

*__NOTE:__ The weight represented here is proportional to the total assessment weight for this unit of study. For example, a weight of 20% means that this assessment component contributes 20% of the total mark for this unit of study.

The learning outcomes are listed in the unit of study outline.

For the assessment items involving group work, a self/peer-assessment form must be submitted with the deliverables. Each student should self-assess their contribution to the group work and honestly document the type and proportion of tasks they worked on. The form allows for students to assess the contribution of their peers.

In general, all members of a group will receive the same group mark, unless there are grounds for variation. This can only be determined by the set of self/peer-assessment forms submitted by each student. Only a significant variation in contribution will result in modification of an individual student's mark and only after the unit coordinator and/or relevant studio tutor have consulted with each of the affected team members.

Each student is to submit the form as part of the assessment deliverable. It will be treated confidentially, except for cases of disparity when it may be referred to as part of an interview session with the students to determine actual contribution.

3. Assessment Tasks

(1) Assessment 1 Concept Proposal and Pitch

Assessment description
A mix of background, user and first-person research will be conducted to explore the problem outlined in the design brief for each stream. Students need to form groups and create a concept proposal document, along with a set of slides for the in-class pitch.

The concept proposal should be formatted as a visual report and contain the following sections:

Project brief (1 page)
Outline the problem you are tackling (only one problem). Explain why the problem is important and how it links to your stream's brief.

Background research and market analysis (up to 5 pages)
Research the problem area you are focusing on by exploring academic publications and news articles. Discuss these in this section. The market analysis should identify and discuss existing products on the market that tackle this problem, as well as where they miss the mark (drawbacks). At the end of this section, you should summarise everything that was discussed and identify key gaps that need to be explored further.

Tips:

- First start by narrowing down the topic you are focusing on.
- A good background section flows well from one paragraph to another. Think carefully about the narrative and how the different things you are discussing link together.
- Make sure you include a summary at the end which discusses the key gaps. You can then link your concepts in the next section to these gaps, potentially leading to more grounded concepts.

Concept(s) (up to 10 pages)
You should aim to have at least 3 key concepts. These should all be a potential solution to the problem your group is tackling. You could structure this each concept in this section as follows:

- Concept title
  - Give your concept a nice catchy title that describes what it is/does
- Concept description
  - How would it solve the problem?
  - How does it compare to other solutions already on the market?
  - How would it work?
- Concept art
  - A collection of sketches/renders/diagrams

Hardware/Software requirements (1 page)

- Rough idea of how each concept would be implemented
  - Hardware needed (i.e. Kinect, screen, Raspberry Pi, GTX 1080, etc)
    - Can also include tools and materials to build it
  - Software needed
    - What will your "thing" run on? Windows/Mac/Linux
    - What software will you need? Adobe Suite/3DS Max/Unity/Processing/etc
    - Programming language (i.e. C, C++, C#, Java, Python, Web Technologies, etc)

Group charter (1 page)

- List each group member and their role on the team

Bibliography (no limit)

- Cite all external sources in text throughout the document but also include a bibliography section at the end with all the sources you cited. Should be in APA format! Read more here: https://libguides.library.usyd.edu.au/citation

Guide for your pitch slides:
This where you should really try and sell us your concepts (just 3 of the key concepts) and why they are important for solving the problem you are focusing on. You have **5 minutes to present**, so focus first on presenting the problem and a bit of background for it (2 minutes), and then present each concept (1 minute each).

4. Grade Descriptors

The following generic grade descriptors will be used for assessing your submissions:

Grade	Description
High Distinction 85 - 100	Work of outstanding quality, demonstrating mastery of the learning outcomes assessed. The work shows significant innovation, experimentation, critical analysis, synthesis, insight, creativity, and/or exceptional skill.
Distinction 75 - 84	Work of excellent quality, demonstrating a sound grasp of the learning outcomes assessed. The work shows innovation, experimentation, critical analysis, synthesis, insight, creativity, and/or superior skill.
Credit 65 - 74	Work of good quality, demonstrating more than satisfactory achievement of the learning outcomes assessed, or work of excellent quality for a majority of the learning outcomes assessed.
Pass 50 - 64	Work demonstrating satisfactory achievement of the learning outcomes assessed.
Fail 1 - 50	Work that does not demonstrate satisfactory achievement of one or more of the learning outcomes assessed.

5. Assessment Rubric

Assessment Criteria

Methodology

A. Background research: in terms of depth and scope.
B. Design process: in terms of description of methods, process steps, adaptation to feedback and real iteration.
C. Critical analysis and synthesis: evidenced through documentation explaining the data analysis and summarising the key findings; drawing logical conclusions based on the findings.

Prototype

D. Concept: in terms of novelty, innovation, and relevance to the design brief.
E. Technical execution: in terms of execution (use of appropriate technologies/material, fidelity of implementation) as well as sophistication (development environment used, level of functionality implemented, etc) of your final prototype; quality of the prototype implementation.

F. Visual design quality of prototype implementation: in terms of visual and interaction design, use of design principles, etc., as well as appropriateness of chosen design solution regarding the target audience and topic.

Documentation

G. Quality of documentation: includes overall quality of the submission – in terms of content (depth and clarity of explanations, references to principles and other material covered in lectures and tutorials, as well as demonstration of further research and solid understanding of the material covered) and style (writing style, structure, layout and formatting, consistency, grammar). The submission is also considered in terms of how it attributes external sources and consistently uses the specified APA (American Psychological Association) reference style along with a bibliography.

H. Exhibition and presentation: in terms of how well the work was presented to peers (either verbally or visually).

Reflection

I. Quality of reflection: relating to the weekly individual reflection on contribution and teamwork

Methodology

A. Background research: in terms of depth and scope.

HD	D	CR	P	F
The work is grounded in substantial background research highly relevant to the chosen topic area and problem.	The work is clearly grounded in some background research that is clearly relevant to the chosen topic area and problem.	Some coverage of background research that is relevant to the chosen topic area and problem.	Minimal background research conducted that is somewhat relevant to the chosen topic and problem.	No research or evaluation conducted.

B. Design process: in terms of description of methods, process steps, adaptation to feedback and real iteration.

HD	D	CR	P	F
Thorough process with thoughtfully applied methods in all phases. The iterative process demonstrates true increasing progression of the chosen concept, leading to a solution that is clearly superior to prior iterations.	Thorough process and appropriate methods applied in most phases. The iterative process demonstrates commendable progression of the chosen concept.	Appropriate methods applied in most phases. The iterative process demonstrates refinement / progression of the chosen concept.	Some inappropriate or incomplete use of methods. The iterative process demonstrates some development of the chosen concept.	Inappropriate or incomplete applications of methods. Very weak or vague description of iteration process. Or, no iteration process outlined.

C. Critical analysis and synthesis: evidenced through documentation explaining the data analysis and summarising the key findings; drawing logical conclusions based on the findings.

HD	D	CR	P	F
Concise summary of important findings, supported by critical analysis of conflicting and multiple themes.	Concise summary of important findings, supported by critical discussion.	Findings written clearly and summarised well.	Findings written clearly but not summarised well.	Findings written in unclear language or containing numerous mistakes. Sloppy or garbled layout of report.

Prototype

D. Concept: in terms of novelty, innovation, and relevance to the design brief.

HD	D	CR	P	F
Innovative concept that offers an entirely new experience.	Novel concept, with some aspects that are similar to what has been done before.	Interesting concept but lacks novelty.	Concept satisfies the requirements of the design brief without being novel.	Concept does not address the design brief and is not novel.

E. Technical execution: in terms of execution (use of appropriate technologies/material, fidelity of implementation) as well as sophistication (development environment used, level of functionality implemented, etc) of your final prototype; quality of the prototype implementation.

HD	D	CR	P	F
Innovative and sophisticated technical implementation that matches professional standards.	Original and well-executed implementation.	Appropriate implementation but lacking in some parts.	Satisfying implementation, but large parts of the implementation are lacking.	Incomplete implementation, inappropriate use of technologies.

F. Visual design quality of prototype implementation: in terms of visual and interaction design, use of design principles, etc., as well as appropriateness of chosen design solution regarding the target audience and topic.

HD	D	CR	P	F
The prototype is beautifully presented and is of a high-fidelity. The overall design clearly fulfils and goes beyond the brief.	The prototype is nicely presented and is of a high-fidelity. The overall design clearly fulfils the brief.	The prototype is neat and orderly and of a high-fidelity. The overall design meets the brief well in some areas.	The prototype is functional, but some parts don't work as expected. The overall design misses much of the brief's requirements.	The prototype is not functional and low-fidelity. The design does not fulfil the requirements in the brief.

Documentation

G. Quality of documentation: includes overall quality of the submission – in terms of content (depth and clarity of explanations, references to principles and other material covered in lectures and tutorials, as well as demonstration of further research and solid understanding of the material covered) and style (writing style, structure, layout and formatting, consistency, grammar). The submission is also considered in terms of how it attributes external sources and consistently uses the specified APA (American Psychological Association) reference style along with a bibliography.

HD	D	CR	P	F
Excellent demonstration and solid understanding of the topics taught in the unit and clearly documented project that matches professional standards. Presented in an attractive and aesthetically pleasing format to an exceptional level of quality. References are styled correctly, draw from multiple sources, and are used to support arguments throughout the document.	Thorough demonstration and solid understanding of the topics taught in the unit and clearly documented project. Presented in an attractive and aesthetically pleasing format to a high-level of quality. References are styled correctly and draw from multiple sources.	Satisfying demonstration and understanding of the topics taught in the unit and well-documented project. Presented in an attractive and aesthetically pleasing format at a good level of quality. References are mostly styled correctly.	Some demonstration and understanding of the topics taught in the unit and mostly well-documented project. Presented in an attractive and aesthetically pleasing format at a satisfactory level of quality. References draw from very few resources and have style inconsistencies.	Inadequate demonstration and understanding of the topics taught in the unit and missing and confusing project documentation. Poorly presented and formatted. References are non-existent and/or mostly formatted incorrectly.

H. Exhibition and presentation: in terms of how well the work was presented to peers (either verbally or visually).

HD	D	CR	P	F
Excellent verbal or visual communication of the concept, design process, and how the prototype works, producing a persuasive argument for how effectively your solution meets elements of the brief. Professional quality of visual presentation is succinct yet informative.	Thorough presentation in an attractive and aesthetically pleasing format to a high-level of quality.	Satisfying presentation in an attractive and aesthetically pleasing format at a good level of quality.	An adequate presentation in an attractive and aesthetically pleasing format at a satisfactory level of quality.	Inadequate presentation that was poorly presented and formatted.

Contribution

I. Team contribution: in terms of the quality of the individual reflection on contribution and teamwork, and the rating received by other team members.

HD	D	CR	P	F
Excellent account of the work completed to date. Contribution to the project to date is considered by the rest of the team and studio tutor to be of a high standard.	Thorough account of the work completed to date. Contribution to the project to date is considered by most of the team and studio tutor to be of high quality.	Satisfying account of the work completed to date. Contribution to the project to date is considered by the some of the team and studio tutor to be of good quality.	Adequate account of the work completed to date. Contribution to the project to date is considered by the some of the team and studio tutor to be of satisfactory quality.	Inadequate account of the work completed to date. Contribution to the project to date is considered to be of poor quality.

Assessment Results and Feedback

Assessment results and feedback will be provided within 2 weeks of the submission date.

Assessment Policies and Procedures

For assessment policies and procedures, including academic integrity, late submissions, and special consideration, see the unit of study outline.