

Course Outline & Study Guide

Faculty	Faculty of Fine and Applied Arts		
Department	Department of Multimedia and Graphic Arts		
Course Title	Experimental Design Practices		
Course Type	Core		
Instructor's Name	Dr. Marinos Koutsomichalis		
ECTS	7.5		
Course Code		Semester	Autumn
Prerequisites	N/A	Required	N/A
Level of Studies	Master		
Language of Instruction και Examination	English		
Teaching Methodology	Distance <input checked="" type="checkbox"/>		Hybrid <input type="checkbox"/>
Evaluation	6 design assignments (6 x 8% = 48%) Final Assignment (40%) Micro-website Report (Research Catalogue) (12%)		
This study guide has been developed by the instructor of the course and it has been approved by the program coordinator	Marinos Koutsomichalis Panayiotis Zaphiris		

<p><i>Brief Course Summary & Course Purpose</i></p>	<p>This module concerns critical and experimental design practices that are largely research-driven, speculative, and non-solutionist. It zeroes in on a broad array of topics ranging from design as material exploration, post-optimal electronic instruments, design fiction, post-digital objecthood, ludic design, science fiction, 'data-things', design as political critique, and others. These are scrutinised with respect to physical objects, software, electronic appliances, speculative fabulation, crafts, contemporary techno-scientific culture, and social activities. Students will review the history and theory behind a broad array of experimental design practices, will analyse and discuss a number of case studies, and, much more importantly, will actively design and selectively produce themselves (individually and in small workgroups) a number of physical, digital, fictional, or hybrid artefacts.</p>
<p><i>Course Content (list of subjects to be delivered per week)</i></p>	<ul style="list-style-type: none"> • Week 1 & 2: Design as material exploration: artefacts that are their own (un)making. • Week 3 & 4: 'Hertzian' electronics and post-optimal interactions: introduction to physical computing • Week 5 & 6: Design as speculation: design fiction, speculative fabulation, invitations to make-believe • Week 7 & 8: (Post-)digital objecthood: designing with/for algorithms and data, data-things • Week 9 & 10: Design as critique: Decolonialist design, activism, affairs of feminism/gender • Week 11 & 12: Designing for the more-than-human other - design as philosophical enquiry • Week 13 & 14: Ludic design / DIWO / Dark Ecologies / Aesthetics of reparability

Learning Outcomes (please develop the learning outcomes of the course considering the EQF guide as indicated in the next column)

- Upon successful completion of the course, students will be able to:
- Think about, and conduct research, with respect to highly specialised and state-of-the-art affairs in experimental design;
 - Compare different approaches to experimental design;
 - Summarise a number of strategies in critical/speculative design and design fiction;
 - Recognise a wide array of methods by means of which design experimentation and design exploration manifests itself in various disparate contexts and with respect to different materials and technologies;
 - Describe theoretical and empirical approaches to 'hertzian' instruments, post-optimal interfaces, design fiction, speculative fabulation, decolonialist design, post-digital objecthood, and other experimental design subareas;
 - Use a combination of methods in different contexts to frame design experimentation with materials, concepts and ideas;
 - Develop new knowledge and procedures, integrate knowledge from different fields, and apply an appropriate sequence of methods (toolkit) to design and, eventually, to selectively produce experimental (physical, digital, fictional, or hybrid) artefacts;
 - Responsibly manage complex design contexts that require new experimental strategies.

Keywords: critical design, speculative design, ludic design, Hertzian electronics, non-solutionist design, design for the more-than-human other

Teaching Schedule

Number of Lectures (Sessions)	7	Face to Face:	Distance: 7
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Evaluation Schedule

- Assignment 1: Week 2
- Assignment 2: Week 4
- Assignment 3: Week 6
- Assignment 4: Week 8
- Assignment 5: Week 10
- Assignment 6: Week 12
- Final Assignment: Week 14
- Micro-website Report: Week 14

Teaching and Learning Tools

Mixed method comprising lectures, online workshopping, hands-on design exercises, guest lectures/interviews, prototyping, individual/group projects, asynchronous study, synchronous telematic sessions, and analysis of real-life case studies. Learning tools comprise:

- Google Classroom / Google Drive / Google Docs / Google Forms
- zoom.us / Jitsi
- Kahoot
- Research Catalogue

**Contact Information
(office Hours, method of
contact etc)**

Directly via email
(koutsomichalis@idmaster.e
u) or, alternatively, through
teleconferencing (arranged
via email).

Study Guide

Session 1 (W 1-2)	Design as material exploration: artefacts that are their own (un)making.
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research in design approaches pivoting on material exploration; • Recognise methods by means of which experimental design approaches pivoting on material exploration manifest themselves with respect to different materials and technologies.
Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to design pivoting on material exploration; • Use a combination of methods to frame design experimentation with

	<p>respect to material exploration and in different real-world contexts.</p>
<p>Content</p>	<p>This session examines design tactics to explore materials, techniques, technologies, and interaction schemata. It zeroes in on physical artefacts that are themselves records of their own making or unmaking, and scrutinises related design strategies and theoretical implications. Students are asked to come up with their own draft designs of a sort.</p>
<p>Self-evaluation activities</p>	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Recognise relevant methods and processes in other contexts. <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Creative exercises (individual and group); • Brainstorming; • Co-design challenge. <p>Assignment:</p> <p>Design an artefact that is its own making or unmaking. The draft should be supported by a proof of concept, visual/design research, implemented parts, or otherwise.</p>

<p>Bibliography</p>	<p>Mandatory:</p> <ul style="list-style-type: none"> • Koutsomichalis, M. (2022). Instruments that are more than instruments (and other stories). <i>Ricerca</i> 15 (pp. 76-106) and <i>Ideas Sonicas</i> 27 (pp. 57-76) joint issue. Medellin, CO & Morelia, MX. • Eickhoff, D., Mueller, S., & Baudisch, P. (2016, May). Destructive games: Creating value by destroying valuable physical objects. In <i>Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems</i> (pp. 3970-3974). <p>Optional:</p> <ul style="list-style-type: none"> • Gidal, P. (2013). <i>Materialist</i> film. Routledge. • Bowers, J., & Villar, N. (2006). Creating ad hoc instruments with Pin&Play&Perform. <i>Proceedings of the International conference on New Interfaces for Musical Expression</i> (pp. 234-239). • Hewitt, D. (2015). 20 Oscillators in 20 minutes. • Jordan, R. (2015). <i>DIY Electronics: Revealing the Material Systems of Computation</i>. <i>Leonardo Music Journal</i>, 25, 41–46.
<p>Hours of Study including self-evaluation activities and or assignment's preparation</p>	<p>Studying: 12 hours Self-evaluation: 3 Hours Assignment Preparation: 10 hours</p>

Keywords:	Destructive games, Structural/materialist cinema, Constructivism, Parfileuse, Ad-hoc instruments, Literal/Critical Design
Study Guide	
Session 2 (W 3-4)	'Hertzian' electronics and post-optimal interactions: introduction to physical computing
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research with respect to 'Hertzian' electronic instruments; • Recognise methods by means of which 'Hertzian' instruments manifest themselves with respect to different materials and technologies.
Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe theoretical and empirical approaches to 'Hertzian' design and compare different approaches thereof; • Use a combination of methods to frame design experimentation with respect to 'Hertzian' instruments and in different real-world contexts; • Familiarise themselves with physical computing technologies.

Content	<p>This session pivots on Dunne's seminal 'Herzian tales' book and elaborates on non-solutionist and post-optimal (critical) design strategies with respect to electronic instruments and appliances. This session also functions as an introduction to physical computing with micro-controllers, simple programs and circuitry. Students are asked to design draft 'hertzian' instruments capable of simple or more advanced interactions and to optionally implement aspects/elements with hardware.</p>
Self-evaluation activities	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Experiment with micro-computers and related technologies <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Experiment with micro-computers and related technologies • Co-design challenge. <p>Assignment: Design a 'Hertzian' instrument capable of simple or more advanced interactions. The draft should be supported by a proof of concept,</p>

	<p>visual/design research, implemented parts, or otherwise.</p>
<p>Bibliography</p>	<p>Mandatory:</p> <ul style="list-style-type: none"> • Dunne, A. (2008). Hertzian tales: Electronic products, aesthetic experience, and critical design. MIT press. • Koutsomichalis, M. (2022). Instruments that are more than instruments (and other stories). <i>Ricerca</i> 15 (pp. 76-106) and <i>Ideas Sonicas</i> 27 (pp. 57-76) joint issue. Medellin, CO & Morelia, MX. <p>Optional:</p> <ul style="list-style-type: none"> • Benford, S., Greenhalgh, C., Giannachi, G., Walker, B., Marshall, J., & Rodden, T. (2012, May). Uncomfortable interactions. In <i>Proceedings of the SIGCHI conference on human factors in computing systems</i> (pp. 2005-2014). • Dunne, A., & Raby, F. (2001). <i>Design noir: The secret life of electronic</i>

	<p>objects. Springer Science & Business Media.</p> <ul style="list-style-type: none"> • Ishii, H., Lakatos, D., Bonanni, L., & Labrune, J. B. (2012). Radical atoms: beyond tangible bits, toward transformable materials. <i>interactions</i>, 19(1), 38-51.
Hours of Study including self-evaluation activities and or assignment's preparation	<p>Studying: 12 hours Self-evaluation: 3 Hours Assignment Preparation: 10 hours</p>
Keywords:	<p>Critical design, Hertzian instruments, Dirty electronics, infra-instruments, Literal/Critical design</p>
Study Guide	
Session 3 (W 5-6)	<p>Design as speculation: design fiction, speculative fabulation, invitations to make-believe</p>
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research in speculative design and design fiction; • Recognise methods by means of which speculative design and design fiction manifest themselves in different real-world contexts.

Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to speculative design and design fiction; • Use a combination of methods to frame design experimentation with respect to speculative design and design fiction in different real-world contexts.
Content	<p>This session concerns design as speculation and discusses design fiction, thought-experiments and speculative fabulation with references to theory, practice and popular culture (science fiction, games, films, series). Students are asked to come up with their own, fabulations, fictional artefacts, or mock-prototypes with respect to affairs concerning future societies.</p>
Self-evaluation activities	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Experiment with design speculations and design fiction <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Creative experiments (individual and group)

	<p>Assignment: Come up with a fictional artefact, a fabulation, or a mock-prototype with respect to affairs concerning future societies.</p>
Bibliography	<p>Mandatory:</p> <ul style="list-style-type: none"> • Dunne, A., & Raby, F. (2013). <i>Speculative everything: design, fiction, and social dreaming</i>. MIT press. • Koutsomichalis, M. (2022). Instruments that are more than instruments (and other stories). <i>Ricerca</i> 15 (pp. 76-106) and <i>Ideas Sonicas</i> 27 (pp. 57-76) joint issue. Medellin, CO & Morelia, MX. <p>Optional:</p> <ul style="list-style-type: none"> • Lepri, G., & McPherson, A. (2019b). Making up instruments: Design fiction for value discovery in communities of musical practice. <i>Proceedings of the 2019 on Designing Interactive Systems Conference</i> (pp. 113-126). • Shaviro, S. (2016). <i>Discognition</i>. Watkins Media Limited.

Hours of Study including self-evaluation activities and or assignment's preparation	Studying: 16 hours Self-evaluation: 3 Hours Assignment Preparation: 6 hours
Keywords:	Design fiction, Speculative Design, Fabulation, Utopia, Science Fiction, Make-believe
Study Guide	
Session 4 (W 7-8)	(Post-)digital objecthood: designing with/for algorithms and data, data-things
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself, think about, and conduct design in post-digitalness and data-driven design; • Recognise and compare different approaches to data-driven design.
Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to post-digitalness and data-driven design; • Use a combination of methods to frame design experimentation with respect to data physicalisation, visualisation, and signification.
Content	This session revolves around algorithms, self-generative systems, parametric design, and, most importantly, ways to visualise, sonify or physicalise data. Affairs and implications with

	<p>respect to hybrid post-digital objecthood are discussed. Practical assignments concern the design of physical, digital, or hybrid “data-things”.</p>
<p>Self-evaluation activities</p>	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Experiment with data-driven artefact design <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Creative experiments (individual) • Brainstorming <p>Assignment: Design a ‘data-thing’. The draft should be supported by a proof of concept, visual/design research, implemented parts, or otherwise.</p>

Bibliography

Mandatory:

- Nissen, B., & Bowers, J. (2015, April). Data-things: digital fabrication situated within participatory data translation activities. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (pp. 2467-2476).
- Koutsomichalis, M. (2019, June). Hertzian, Disruptive, Experimental Text Physicalizations. In Proceedings of the Conference: International Symposium on Electronic Art (ISEA 2019) Gwangju, Korea.
- Koutsomichalis, M., & Psarra, A. (2015). Computer-aided weaving: From numerical data to generative textiles. Electronic Visualisation and the Arts (EVA 2015), 122-123.
- Dragicevic, P., Jansen, Y., & Vande Moere, A. (2020). Data physicalization. Handbook of Human Computer Interaction, 1-51.

Optional:

- Koutsomichalis, M. (2013). Mapping and visualization with SuperCollider. Packt Publishing Ltd.

	<ul style="list-style-type: none"> • Jabi, W. (2013). Parametric design for architecture. Hachette UK.
Hours of Study including self-evaluation activities and or assignment's preparation	Studying: 12 hours Self-evaluation: 3 Hours Assignment Preparation: 10 hours
Keywords:	Data physicalisation, data things, post-digital, generative design, parametric design, digital fabrication
Study Guide	
Session 5 (W 9-10)	Design as critique: Decolonialist design, activism, affairs of feminism/gender
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research with respect to the broader theme of design as critique or activism; • Recognise and compare different approaches to

	<p>the broader theme of design as critique or activism.</p>
Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to the broader theme of design as critique or activism; • Use a combination of methods to frame design experimentation with respect to political activism in different contexts.
Content	<p>This session concerns design as critique, and pivots on design strategies with respect to broader societal and political affairs such as digital colonialism, decolonisation, feminism, gender issues, activism, climate crisis, and others. Practical assignments concern the production of artefacts that somehow articulate critique.</p>
Self-evaluation activities	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Experiment with design as critique. <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Creative experiments (individual and group) • Brainstorming • Co-design challenge

	<p>Assignment: Design an artefact that somehow articulates political critique. The idea/draft should be supported by a proof of concept, visual/design research, implemented parts, or otherwise.</p>
Bibliography	<p>Mandatory:</p> <ul style="list-style-type: none"> • Fuad-Luke, A. (2013). Design activism: beautiful strangeness for a sustainable world. Routledge. • Dunne, A., & Raby, F. (2013). Speculative everything: design, fiction, and social dreaming. MIT press. • Wizinsky, M. (2022). Design after Capitalism: Transforming Design Today for an Equitable Tomorrow. MIT Press. <p>Optional:</p> <ul style="list-style-type: none"> • Richardson, L. J. (2017). I'll give you 'punk archaeology', sunshine. World Archaeology, 49(3), 306-317.
Hours of Study including self-evaluation activities and or assignment's preparation	<p>Studying: 16 hours Self-evaluation: 3 Hours Assignment Preparation: 6 hours</p>

Keywords:	Design activism, critical design, feminism, gender studies, socialism, utopia
Study Guide	
Session 6 (W 11-12)	Designing for the more-than-human other - design as philosophical enquiry
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research with respect to non-anthropocentric design; • Recognise and compare different approaches to non-anthropocentric design.
Learning Outcomes	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to non-anthropocentric design; • Use a combination of methods to frame design experimentation with respect to non-anthropocentric design in different contexts.
Content	<p>This session pivots on non-anthropocentric design and concerns strategies and case studies for the design of artefacts to be used by plants, animals, machines, and other more-than human actors. Students are asked to design themselves prototypes of a sort.</p>

<p>Self-evaluation activities</p>	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Experiment with non-anthropocentric design methods. <p>Interactive activities:</p> <ul style="list-style-type: none"> • Class discussion and Q&A; • Creative experiments (individual and group) • Brainstorming • Co-design challenge <p>Assignment: Design an artefact targeting some non-human entity. The draft should be supported by a proof of concept, visual/design research, implemented parts, or otherwise.</p>
<p>Bibliography</p>	<p>Mandatory:</p> <ul style="list-style-type: none"> • Fox, Tyler, Elizabeth Demaray, Kira deCoudres, Leigh M. Smith, Helene Steiner, Jordan Matthew Yerman, and Adam Zaretsky (2017) Design for the Non-Human. Proceedings of the 23rd International Symposium on Electronic Art ISEA2017 (pp. 657-661) • Bogost, I. (2012). Alien phenomenology, or, what it's like to be a thing. U of Minnesota Press. <p>Optional:</p>

	<ul style="list-style-type: none"> • Bryant, L. R. (2011). The democracy of objects. Open Humanities Press. • Harman, G. (2018). Object-oriented ontology: A new theory of everything. Penguin UK.
Hours of Study including self-evaluation activities and or assignment's preparation	Studying: 16 hours Self-evaluation: 3 Hours Assignment Preparation: 6 hours
Keywords:	More-than-human, object oriented ontology, non-anthropocentric design.
Study Guide	
Session 1 (W 13-14) EXAM PERIOD	Ludic design / DIWO / Dark Ecologies / Aesthetics of repairability
Learning Objectives	<ul style="list-style-type: none"> • Familiarise oneself with, think about, and conduct design research with respect to ludic design and a number of other disparate topics in design research; • Recognise and compare different approaches insofar as a number topics in design research are concerned.

<p>Learning Outcomes</p>	<p>Following the session, students shall be able to:</p> <ul style="list-style-type: none"> • Describe and compare theoretical and empirical approaches to ludic design and a number of other disparate topics in design research; • Use a combination of methods to frame design experimentation with respect to ludic design and a number of other disparate topics in design research.
<p>Content</p>	<p>This session revolves around a number of disparate topics that broadly relate, among others, with ludic design, socially empowered design and doing-it-with-others, design after the climate collapse, and aesthetics of re-use/repairability.</p> <p>Practical assignments concern the design and eventual production of a digital, physical, fictional, hybrid, or other artefact drawing from the all the material covered in this class.</p>

<p>Self-evaluation activities</p>	<p>Self-evaluation activities:</p> <ul style="list-style-type: none"> • Compare own ideas, methods and draft designs with the ones found in literature as well as with those of other students; • Freely experiment drawing from all prior sessions. <p>Interactive activities:</p> <ul style="list-style-type: none"> • Ideation and brainstorming with respect to the Final Assignment • Co-design challenge <p>(Final) Assignment: Design and (partially) produce an experimental artefact selectively drawing on what has been discussed in all prior sessions. Students should also prepare a research catalogue exposition presenting the eventual artefact (or parts of it), documenting its design/production and detailing the ideation process.</p>
<p>Bibliography</p>	<p>Mandatory:</p> <ul style="list-style-type: none"> • Gaver, W. W., Beaver, J., & Benford, S. (2003). Ambiguity as a resource for design. Proceedings of the SIGCHI conference on Human factors in computing systems, 233-240. • Harman, G. (2016). Living Earth: Field Notes from the Dark Ecology Project 2014-2016. • Koutsomichalis, M. (2022). Instruments that

	<p>are more than instruments (and other stories). <i>Ricerca</i> 15 (pp. 76-106) and <i>Ideas Sonicas</i> 27 (pp. 57-76) joint issue. Medellin, CO & Morelia, MX.</p> <p>Optional:</p> <ul style="list-style-type: none"> • Morton, T. (2016). <i>Dark ecology: For a logic of future coexistence</i>. Columbia University Press.
<p>Hours of Study including self-evaluation activities and or assignment's preparation</p>	<p>Studying: 4 hours Self-evaluation: 3 Hours Assignment Preparation: 18 hours</p>
<p>Keywords:</p>	<p>Ludic design, co-design, do-it-with-others, dark ecology, aesthetics of repairability</p>