Research – Development – Innovation Syllabus

<table>
<tr><td rowspan="4">1. General Information</td><td colspan="5">Course title: Designing for Inclusivity: A Case Study of Low Vision and Blind People</td></tr>
<tr><td colspan="5">Course coordinator(s) / lecturer(s): Mary Karyda, Giorgia Burzio, Adam Szabo, Mihaly Minko
Contact details: karyda@mome.hu</td></tr>
<tr><td>Level and Code: B-KF-401-IK-242502-03</td><td>Position in the Curriculum:</td><td>Recommended semester:</td><td>Credits: 5</td><td>Teaching hours: 48
Student workload: 102</td></tr>
<tr><td>Related codes: M-KF-301-IK-242502-03
M-KF-E-301-IK-242502-03</td><td>Type: combined</td><td>Is it open to sign-up as an elective?</td><td colspan="2">Specific pre-conditions to sign-up as an elective:</td></tr>
<tr><td colspan="5">Interlinkages / prerequisites, parallel units:</td></tr>
<tr><td rowspan="2">2. Targeting</td><td colspan="5">Aims and principles of the course:

The course aims to engage students in designing for inclusivity in the context of low-vision or blind (LVB) people. The goal of designing for inclusivity is to embrace human diversity in all of its manifestations and provide environments, services, or products that are naturally useable and accessible to a wide range of people. Thus, through a case study that includes qualitative interviews with LVB students, insights from an ethnographic visit to the Institute for the Blind in Budapest, and eye-tracking and posture data mapping, students will gain firsthand insights into some of the challenges and needs of this community. The students will use the given data to inform their design decisions but most importantly, they will be given the opportunity to test their prototypes with blind or low-vision people, receive feedback and iterate. By the end of the course, students will have applied user-centered design principles and leveraged real-world data to create meaningful designs, promoting empathy and social responsibility in design practices.</td></tr>
<tr><td colspan="5">Intended learning outcomes / professional and transitive competencies:
(in accordance with the subject description)

Knowledge: Gain in-depth knowledge about the specific needs and challenges faced by blind and low vision individuals; learn the fundamentals of designing with a focus on the end-user, especially in the context of accessibility; understand how to work with and from real-work data.

Skills: Enhance skills in analyzing real-world data; develop further in concept development, design and prototyping for LVB; improve teamwork and communication skills.

Attitudes/attributes: Use empathy as a design tool; embrace diverse perspectives; make positive social impact; recognize ethical considerations.</td></tr>
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[gi1] megjegyzést írt: maybe specify "eye-tracking and posture data on currently used interfaces/tactile maps"?

[gi2] megjegyzést írt: when interacting with information ?
to not repeat data...

	Autonomy and Responsibility: **manage time effectively as we will be working with real-world data and target group; take responsibility over their contributions; self-evaluate and reflect.**
3. Itinerary	Course content (topics and themes): 1. **Accessibility and Inclusive Design** 2. **Design Ethics and Social Responsibility** 3. **Using data as part of the design process but also in the outcome** 4. **Introduction to Qualitative Methods and Analysis** 5. **Prototyping Techniques (low fidelity vs high fidelity prototyping, tools and materials, iterative design process)** 6. **User Centered Design Principles**
	RDI methods and tools used in the course: qualitative methods; prototyping; user testing
	Specificity of the learning process: **The learning process in this course is highly experiential and centered on real-world engagement with blind and low vision individuals. It emphasizes empathy-building through direct interaction, allowing students to deeply understand the users' needs. The course integrates theoretical knowledge with practical application by involving students in data analysis and user testing, which informs their design process. Iterating is essential to design; the students will learn how to access insights and iterate successfully.** Teaching method: project-based learning; reflective practice; mentoring and guidance Schedule: All lectures include hands-on workshops and experimentation. 1. Lecture on Accessibility and Inclusive Design & Course Overview **||** Empathy Building Activities 2. Introduction to the Case Study & Guest Speaker Lecture **||** Annotated Portfolio of Current technologies for LVB people 3. Working with Data **||** Hands on Data Explorations 4. Lecture on Ethics and Social Responsibility (guest speaker) **||** Workshop on Ethics 5. Project planning & concept development 6. Lecture on Prototyping Techniques **||** Hands on Prototyping 7. Design Studio 8. Design Studio & Preparation for Testing 9. User Testing with LVB people 10. Final Presentations Tasks and assignments (with student notional workload**): data analysis; user testing; prototype development; final presentation; reflective journal entries** Learning environment: **Innovation Center Coworking space on the 3rd floor**

[gi3] megjegyzést írt: Fantastic!

4. Evaluation

Assessment:

Evaluate students' understanding of user-centered design principles, their ability to apply research findings to design, and their proficiency in collaboration and prototyping. Assessment is continuous and includes both individual and group work, ensuring that each student's contributions and learning progress are fairly evaluated.

Assignments:
Data analysis assignment; design concept proposal; prototype development; prototype testing; Journal Entries and final presentations

Assessment method: **Based on whether the deliverables meet the criteria presented at class; Class attendance will be considered**

Assessment criteria:

- **Understanding of User Needs**
- **Application of Research and Data**
- **Originality of Ideas**
- **Quality of Design Prototypes**
- **Teamwork**
- **Reflective Practice**

Calculation of grade:
(weights of the achievements, assignments; ranges of rates or points)

- Attendance in classes, active contribution to discussions, workshops (30%)
- Course project (concept design & prototyping) (30%)
- Testing (20%)
- Final presentation (20%)

Prior learning recognition (based on application):
N/A

Recommended readings:

Abras, C., Maloney-Krichmar, D., & Preece, J. (2004). User-centered design. *Bainbridge, W. Encyclopedia of Human-Computer Interaction. Thousand Oaks: Sage Publications*, *37*(4), 445-456.

Alty, J. L., & Rigas, D. I. (1998, January). Communicating graphical information to blind users using music: the role of context. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (pp. 574-581).

Brinkmann, S. (2014). Doing without data. *Qualitative inquiry*, *20*(6), 720-725.

Helander, M. G. (Ed.). (2014). *Handbook of human-computer interaction*. Elsevier.

Benda, N. C., Montague, E., & Valdez, R. S. (2020). Design for inclusivity. In *Design for health* (pp. 305-322). Academic Press.

Dischinger, M. (2000). *Design for all Senses. Accessible Spaces for Visually Impaired Citizens*. Chalmers Tekniska Hogskola (Sweden).

Gaver, B., & Bowers, J. (2012). Annotated portfolios. *interactions*, *19*(4), 40-49.

	Godfrey, A. J. R., & Loots, M. T. (2015). Advice from blind teachers on how to teach statistics to blind students. *Journal of Statistics Education*, *23*(3). Gomez, J. L., Langdon, P. M., Bichard, J. A., & Clarkson, P. J. (2014). Designing accessible workplaces for visually impaired people. In *Inclusive Designing: Joining Usability, Accessibility, and Inclusion* (pp. 269-279). Springer International Publishing. Holloway, L. M., Goncu, C., Ilsar, A., Butler, M., & Marriott, K. (2022, April). Infosonics: Accessible infographics for people who are blind using sonification and voice. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (pp. 1-13).
	Additional information: **The course is based on one of the ongoing research projects of the Innovation Center. Students have the opportunity to gain insight into the daily life and processes of research and, in case of deeper interest, to participate in research work beyond the course.**
	Schedule and venue for personal consultation: