

# Disability Design & Innovation

## Module Descriptions

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Technology has the potential to change lives, no more so than in the emerging area of disability innovation. In September the Global Disability Innovation Hub will welcome its first cohort of MSc students to the Disability, Design and Innovation MSc. Here we explore the detail of the course content, topics and six core modules.

### Future Global Technologies for Disability Innovation

Dr Tim Adlam, UCL

Taught at UCL this 30 credit module is designed to provide students with an overview of disability, technology and innovation as a foundation for the remainder of the course. By attending lectures, participating in workshops and seminars, and conducting your own projects; students will have opportunities to learn about what disability is, being an active citizen, the roles of technology in the context of global disability; what key technologies can and can't do; and how they work. This module is coordinated with the 'Making and Research Methods' module, where students will gain practical experience of using and building devices and materials.

Expert external speakers have been invited to contribute to this module, bringing different perspectives and specialist knowledge that will provoke students to further thought. Be ready to have some of your ideas about disability and technology challenged.

The module is in two parts either side of the mid-term reading week. Part 1 contains the principal taught content and introduces students to disability and global technologies, such as robotics, AI, mobility and sensors. In Part 2 students will be taught about end-to-end innovation from conception through to sustainable implementation, using two real-world case studies. You will also work on the case studies, developing your own end-to-end solutions, and presenting them to your peers.

In parallel with Parts 1 and 2, students will work on a group mini-project based in the East London community around Here East. This project will provide you with an opportunity to develop your skills and expertise in disability innovation 'in the wild'; and apply what you have learned in the 'Design Thinking' and 'Making & Research Methods' modules.

### Inclusive Design and Environments

Iain McKinnon, UCL

Students will learn about inclusive design with a focus on the built environment and creating Inclusive Cities. Inclusive design principles, methodologies and practice will be used to create a positive shift in mindset of disability and disabled people. The value and benefit of inclusive

design will be analyzed and interrogated with case studies explored. The wider context will pick up current legislation, policy and guidance used in industry in the UK and abroad.

Students will be encouraged to engage with end users (disabled and older people) to better understand current challenges and the wider impact. Each student will undertake a design project that embraces the principles of inclusive design resulting in a 'prototype' and Kickstarter video.

This module (taught at UCL) will look at creating a positive shift in mindset around disability and inclusion resulting in mainstreaming inclusive design. Students will explore the difference between accessible and inclusive design, how to shape approaches to design and problem solving to be inclusive from the beginning (built in and not bolted on) and look at industry insights and first-hand user accounts and experiences.

The module will look at how design decisions play a significant role and impact many people's abilities to carry out day to day activities with comfort, ease and joy. As well as the wider UK and Global context regarding attitudes and approach.

## **Research Methods and Making Skills**

**Dr Youngjun Cho, UCL**

In this UCL based module students will be equipped with the basics of: quantitative and qualitative research methods, and basic computing and making skills. For the research methods, students will learn about the concepts, ideas, fundamentals of planning and conducting research, starting with how to make a research question. Students will then explore methods for data collection and data analysis tools for quantitative and qualitative data. For the computing and making skills, students will learn about both physical and digital prototyping: spanning from paper and 3d printer-based prototyping to programming which mainly include Arduino for collecting sensor data (e.g. movement and physiological) and using actuators (e.g. for making haptic display) and Python for data visualisation.

The module is designed to be aligned with the Future Global Technologies for Disability and Development module and will be a split of practical workshops and lab sessions in UCL's Institute of Making as well as more formal seminars and computer lab sessions. Once completed, students will be able to create product prototypes for disability innovation, make informed design choices on material and choose appropriate design and statistical tests.

## **Applied Business and Marketing Strategy Developments**

**Dr, London College of Fashion**

Taught at the London College of Fashion this is the module where students will learn about business and marketing. The unit explores various strategic models and theories and examines these in the context of new developments for disabled people. The focus for the module will be on (a) launching a new development (be it a policy, product or service) within an existing

organization/business or (b) launching an innovative start-up development to an identified market (business to business or business to customer). This module will facilitate strategic and creative thinking, analytical evaluation and business model creation and execution.

The module will look at, business structures, strategy and branding, new and emerging patterns of customer behaviour and psychology, supply and value chains, business modelling and creation; product substitution, barriers to market entry and exit, the position of collaborative and competing organisations, corporate social responsibility, digital and social marketing in the domestic and global marketplace context.

## **Design Thinking**

**Dr Antonius van den Broek, Loughborough University London**

Taught at Loughborough University London, Design Thinking is a mindset and a process for innovation that can be used for innovating product, services, customer relationships and organisations. It draws on a combination of analytical and intuitive tools that can be easily learned and applied. This module will introduce students to these tools and give them the opportunity to practice them by applying them to a live "wicked" problem.

The aim of this module is to enhance students' ability to use design approaches and tools for identifying and implementing human centered innovation opportunities around disability. Students are expected to deploy knowledge learned in this module into parallel project modules.

The module comprises lectures and seminars to introduce theory. These are complemented by field work and tutorials to cover practical application and review progress and understanding. Throughout the module all research, analysis and design ideas will be recorded in a logbook.

Typical contact time for each student comprises lectures, workshops and tutorials. The students will further require private study - comprising guided reading and preparation associated with lectures and tutorials; student self-directed general reading in the subject area of module; preparation and production of assessed coursework.

## **Collaborative project**

**Dr Antonius van den Broek, Loughborough University London**

The overall goal of the Collaborative Project is to provide students with an introduction to diverse teamwork, problem solving, and the Loughborough University London community. These goals are achieved through a project-based learning exercise, where students learn to work in teams and apply theory to a real world problem provided by an industry partner.

The Collaborative Project is a unique learning experience in which students with diverse backgrounds work together to solve a problem set by an external partner organisation, where the student teams are expected to work and respond to the client as self-organising units. To ensure that the students achieve their learning outcomes and fulfil the expectations of the organisational partner, each project will be led by academic staff (a.k.a. Project Leader).

The module utilises the project-based learning approach in which student teams will work together with a partner organisation on one of their challenges. In the project-based learning approach, the responsibility for learning shifts from the lecturer to the student. This learning process is supported by online lecturers, academic mentoring, and student reflection.

The students in the module will be put into project groups according to the project requirements and students' preferences. Within the project groups, students will select their own team (typically 4-5 students) in week 2 of the module. The selection will be supported by an online lecture and the academic Project Leader.

Find out more and apply for Global Disability Innovation Hub's MSc in Disability, Design and Innovation;

<https://www.disabilityinnovation.com/education/msc-ddi>