Visual creativity with focus on user experience

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ABSTRACT: The evolution of technology has not only introduced new opportunities but also necessitated the creation of interdisciplinary professions previously unexplored. At the core of design, whether digital or physical, lies user experience (UX) design, a crucial determinant of success in a world brimming with innovative solutions. This article describes a new postgraduate programme: User Experience (UX) and User Interface (UI) Design studies taught at Cracow University of Technology (CUT), Kraków, Poland. This study programme is a response to contemporary changes in the nature of work and emerging new interdisciplinary professions. The programme combines theoretical knowledge with practical skills, covering aspects, such as design research, prototyping and visual creativity. Through a diverse range of teaching methods including computer laboratories, design workshops and remote classes, students are equipped with the necessary skills to succeed in the contemporary job market.

Keywords: Visual creativity, user experience, user interface, visual design

INTRODUCTION

Digital competencies in today's labour market are a key skill not only in the IT field but also currently in engineering professions. Creating projects is based on complex computer programs. Through the development of technology, new opportunities or even new interdisciplinary professions are created that were previously unknown. When creating a design, whether digital or real, at the end of the creation process, one actually creates a user experience design. Correctly planning the experience of a given space or product ensures success in today's world full of new solutions. American researcher, professor and author of *The Design of Everyday Things*, Don Norman, defines that user experience covers all aspects of the end-user's interaction with the company, its services and products [1].

User experience refers to every interaction of the recipient with the product, UX design concerns every element that shapes this experience. All design elements should be legible [2], transparent and understandable to the user [3]. Visual design in user experience extends far beyond the surface allure of crafting visually appealing layouts and designs. Its strategic application has the potential to elevate usability, evoke profound emotional responses and bolster the perceptual resonance of brands [4]. Visual design encompasses the skilful arrangement and orchestration of visual components, facilitating users' comprehension, navigation and engagement with the product [5].

The context of visual values in the contemporary labour market and the author's teaching experience culminated in the idea of study and the creation of a full programme in a new field of postgraduate studies in the Faculty of Architecture atCracow University of Technology (FA-CUT), Kraków, Poland. The studies correspond to the new trend of creating interdisciplinary professions [6] combining knowledge from many fields, both engineering and humanities [7].

STUDY PROGRAMME

The User Experience and User Interface Design study programme is aimed at learning how to create interactive products, based on knowledge combining two spheres: user experience and product interface. The studies highlight the need for a comprehensive way of designing a digital product in terms of understanding user needs and visual hierarchy of a given concept. The intention is to understand the design process through analysis and sketching of solutions and then prototyping interactive digital products with high functional and visual values.

During the studies, the entire creative process of a digital product is carried out in stages. The UX discover stage begins with research and analysis of the design problem, while working in groups. UX define focuses on outlining the product concept based on the study of systems and design patterns. UI develop is about individual prototyping and verification with users. UI deliver is concerned with developing the final graphical side of the product and its presentation (Table 1).

Table 1: Study programme.

UX discover	UX define	UI develop	UI deliver
Introduction to design experiences and product interface	Collaboration in a project team	Visual thinking	Graphic experiences and branding
Design research	Concept design	Artificial intelligence in design	Design criticism
Qualitative and quantitative research methods	Content analysis	Prototyping	Building a portfolio
Business models of digital products	Systems and design patterns	Product visualisation	UX design presentation
Design thinking	Design workshops	Animation and layout	UI design presentation
Product strategy	Interaction design	Data analysis and visualisation	Design consultations - UI deliver
Digital economy	Information architecture	Usability tests	
Design consultations - UX discover	Design consultations - UI define	Design consultations - UI develop	

Students gain knowledge and experience about the overall creative process of a digital product and a full project for their portfolio. Students will receive a certificate of completion of postgraduate studies with a list of completed subjects. During studies, they have access to the Office 365 suite, Figma prototyping tool, access to the Teams group as an information channel and a remote work tool. During classes in computer laboratories, each student has an individual workstation available: a modern computer and a graphic tablet.

The studies last two semesters. The first semester focuses on teamwork, while the second involves individual work related to prototyping the proposed solution. The programme includes 30 subjects, 204 hours of classes. The classes are divided into four main sections, each of them ending with consultations of the digital products created by students during their studies (Table 1). During the User Experience (UX) and User Interface (UI) Design studies, a comprehensive creative process of a digital product is carried out based on design challenges in co-operation with business partners.

TEACHING METHODS

Teaching methods are adapted to the specific topics of individual classes. There are three main forms of conducting classes during studies. Stationary classes are conducted in a computer laboratory or in a large workshop room. Remote classes, on the other hand, consist mainly of lectures and project work.

Computer Laboratories

The programme includes 54 hours of classes in a computer laboratory (Figure 1). Classes in the computer laboratory are conducted in groups of up to 20 students.

Figure 1: Computer laboratories in the Department of Drawing, Painting and Sculpture in the FA-CUT - students at work, during postgraduate classes: User Experience and User Interface Design 2024 (photograph by the author).

Design Workshops

Design workshops are intended to emphasise the role of team co-operation in every phase of product development. Thus, students focus on outlining possible forms of co-operation, describing types of teams, learning how to take into account the needs and requirements of internal and external stakeholders. The rooms where the workshops are held are adapted to working in groups and presenting the results to other study participants (Figure 2).

Figure 2: Design workshops in the FA-CUT - students at work, during postgraduate classes: User Experience and User Interface Design 2024 (photograph by the author).

Students gain the ability to define the business goals of a given product. Theoretical knowledge issues covering key and detailed issues in the field of user experience design and product interface are developed in design teams. Design workshops aim to illustrate the principles applicable in the design process in terms of the culture of co-operation and the culture of competition.

The study programme also places emphasis on the use of design thinking workshops as a problem-solving tool [8]. Creative team workshops based on the assumptions of design thinking (empathise-define-ideate-prototype-test) are a very important step in visualising user problems and discovering the appropriate design path. In addition to delving into the principles and techniques of design, the classes also provide comprehensive coverage of the organisational aspects of design workshops. The participants explore the fundamental rules for crafting engaging and productive workshops, ensuring that participants not only gain valuable insights but also enjoy a dynamic and interactive learning experience. From understanding the profits and objectives of design workshops to mastering the art of facilitation, the curriculum equips students with the skills and knowledge necessary to orchestrate successful workshops in various contexts.

Through hands-on activities and practical exercises, students learn how to develop a workshop plan tailored to specific objectives and target audiences. They delve into the intricacies of structuring workshop sessions effectively, incorporating diverse learning styles, and fostering collaboration and creativity among participants. By the end of the course, students emerge with a comprehensive understanding of the entire workshop life cycle, from initial conception to post-event evaluation, empowering them to design and execute impactful workshops that drive innovation and problem solving in their respective fields.

Remote Classes

Classes are conducted in a hybrid system. About half of the classes are conducted remotely and the other half on-site in Kraków, in the building of Cracow University of Technology. Remote classes are an opportunity to listen to the experiences of designers working in many cities, including New York, Berlin or London.

Thanks to the involvement of instructors from different countries, remote classes have an extremely diverse character. Methods of solving issues related to design processes are shown in a cross-sectional way, referring to solutions used in many different companies. This allows for a multi-level comparison of the contexts of visual design aspects in various business approaches (Figure 3). Remote classes also include individual work on a project carried out during studies and consultations with mentors of given stages.

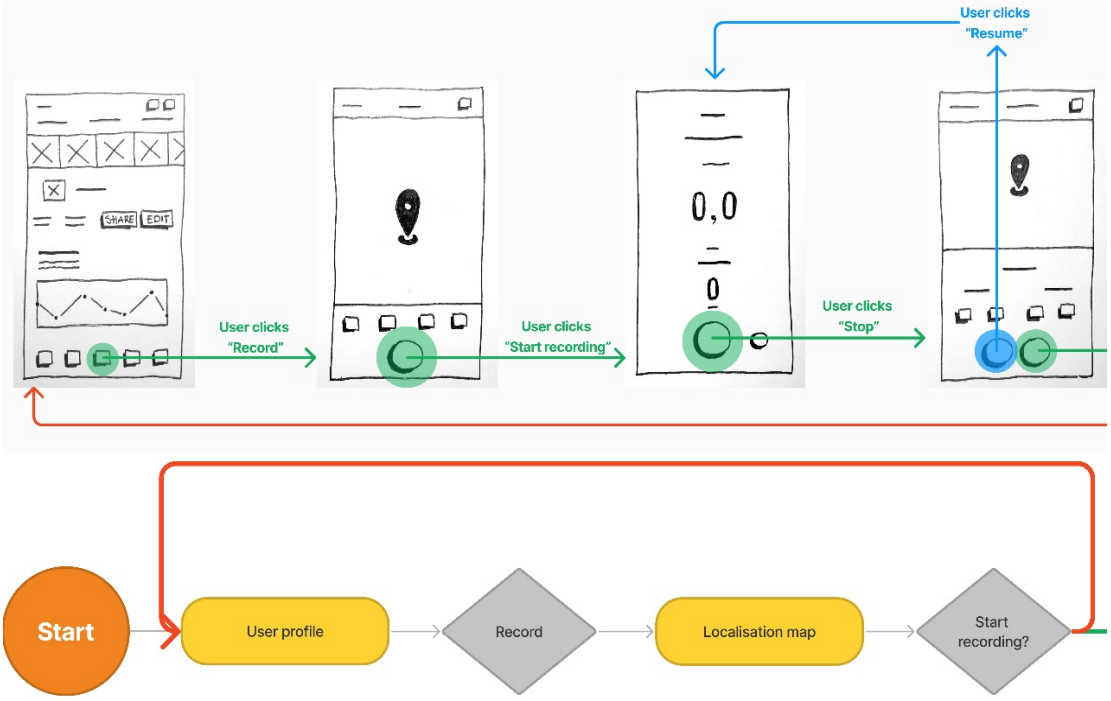

Figure 3: A fragment of a design screen created as part of the prototyping classes.

Currently, many companies use also a hybrid work model. This is becoming more and more popular. Students are prepared to work in such conditions through various forms of conducting classes. Visual creations are generated mainly in programs designed for prototyping given solutions. The tasks of the studio are also based on creating flow diagrams of the information and experience structure of a given product. Visual aspects are treated in the teaching process as an important element of the entire project.

DIRECTIONAL LEARNING OUTCOMES OF THE POSTGRADUATE STUDIES

In the process of planning the studies, a key aspect was to provide an appropriate experience of acquiring knowledge for the student. According to the principle that students learn, the user is the most important factor. People who apply for these postgraduate studies already have a wide range of skills in many fields. The studies as an interdisciplinary field [9] are intended for graduates of any first-cycle (Bachelor's, engineering) or second-cycle (Master's) higher education studies. Therefore, candidates from technical fields, as well as social sciences and humanities, or from completely different fields interested in expanding their knowledge and competencies in the field of UX and UI, can enrol in the studies.

The specific learning outcomes of the User Experience and User Interface Design postgraduate studies cover three main sections. The first one concerns acquiring knowledge covering theoretical issues, including key and detailed data in the scope of user experience design and product interface design. The student becomes familiar with the conditions of research methodologies in terms of user experience and analysis of collected data. Analysis of contemporary trends and needs focused on the user are based on workshop tasks. The developed research methodologies for acquiring knowledge include activities within the theory of user centre design, learning through design and discussions. A special stage is the application of the design thinking methodology to the real design challenges of business partners.

Another aspect of learning outcomes concerns skills acquisition. The graduate is able to monitor and develop a strategic product plan by analysing work progress, sketching variants based on an ongoing assessment of the design solutions. Sketching variants is a very important skill that is practiced during classes [10]. Visual creativity is a key design aspect of digital products [11]. Sketches also help in communication with the project team and are the basis for feedback from the postgraduate business partner. Students create real solutions based on many business aspects, which is valuable in the context of today's dynamic labour market. The graduate also acquires the ability to observe current development trends in the field of digital product design and conditions of the social context and marketing of the product. By using appropriately selected tools students can prepare a prototype that is an interactive digital product with high functional and visual values.

The third key aspect concerns the development of social competencies. The graduate is able to co-operate in interdisciplinary areas of project teams, maintaining proper relationships in the professional environment. The development of visual creativity results in opportunities to work at many stages of digital product development. The graduate is also ready to visually analyse and create projects with special emphasis of the conditions oriented to the needs of the target user. Acquiring social competencies is also achieved by following the rules applicable in the process design in the field of collaborative culture and competitive culture. These aspects provide multi-threaded social competencies for a graduate.

CONCLUSIONS

The programme of the User Experience (UX) and User Interface (UI) Design studies at Cracow University of Technology include:

- creation of the interactive products with high functional and visual values;
- design of the digital products through analysis and research in project groups and individual prototyping;
- classes conducted by experienced practitioners;
- real project for the portfolio.

In conclusion, the establishment of postgraduate studies in user experience (UX) and user interface (UI) design in the Faculty of Architecture at Cracow University of Technology represents a proactive response to the evolving demands of the contemporary job market. In a world where digital competencies are increasingly vital across various professional domains, these studies offer a unique blend of interdisciplinary knowledge, encompassing both technical and humanistic perspectives.

By emphasising the fusion of user experience and product interface design, the programme equips students with the skills necessary to navigate the complexities of modern digital design. From understanding user needs to crafting visually compelling and functionally robust digital solutions, students are guided through a comprehensive curriculum that spans the entire creative process.

Moreover, the incorporation of diverse teaching methods, including computer laboratories, design workshops and remote classes, ensures that students receive a well-rounded education that mirrors real-world industry practices. Through hands-on activities, practical exercises and collaboration with industry partners, students not only gain theoretical knowledge but also develop practical skills and social competencies essential for success in the dynamic labour market. The programme aims to meet the growing demand for professionals skilled in UX/UI design, providing a comprehensive understanding of the entire design process and preparing students for the challenges of the digital age.

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BIOGRAPHY

Grzegorz Schnotale, PhD, is a research and teaching assistant professor in the Faculty of Architecture at Cracow University of Technology (CUT), Kraków, Poland. He is the author of scientific publications focusing on visual aspects of architecture and architectural design. Dr Schnotale is the creator of the idea, and head of the postgraduate course *User Experience and User Interface Design* at the CUT. He is the supervisor of the Student Scientific Club: *Art - Visual Thinking*. He also holds an unlimited building licence in the specialty of architecture. His doctoral thesis received an award from the Minister of Development and Technology in Poland.