

## Module: Usability / User Experience Design

|                              |   |                                |     |
|------------------------------|---|--------------------------------|-----|
| <b>Level</b>                 | Bachelor                                    | <b>Short Name</b>              | UEX |
| <b>Responsible Lecturers</b> | Janneck, Monique, Prof. Dr.                 |                                |     |
| <b>Department, Facility</b>  | Electrical Engineering and Computer Science |                                |     |
| <b>Course of Studies</b>     | International Track                         |                                |     |
| <b>Compulsory/elective</b>   | Compulsory                                  | <b>ECTS Credit Points</b>      | 5   |
| <b>Semester of Studies</b>   | 4   | <b>Semester Hours per Week</b> | 4   |
| <b>Length (semesters)</b>    | 1   | <b>Workload (hours)</b>        | 150 |
| <b>Frequency</b>             | SuSe  | <b>Presence Hours</b>          | 60  |
| <b>Teaching Language</b>     | German/English                              | <b>Self-Study Hours</b>        | 90  |

The following section is filled only if there is **exactly one** module-concluding exam.

|                              |              |                            |                  |
|------------------------------|--------------|----------------------------|------------------|
| <b>Exam Type</b>             | Project Work | <b>Exam Language</b>       | German/English   |
| <b>Exam Length (minutes)</b> |              | <b>Exam Grading System</b> | One-third Grades |

|                                    |  |
|------------------------------------|--|
| <b>Learning Outcomes</b>           | <p>The course introduces central concepts of Human-Computer Interaction. Students learn about important contributions from basic disciplines (such as psychology and cognitive sciences) and are able to make use of these findings for the analysis and design of software products.</p> <p>Participants get to know terms and concepts such as usability, joy of use, user experience as well as standards, legal principles, design principles, interaction techniques and criteria for different application contexts.</p> <p>Furthermore, the course covers user-centered design methods, including quantitative and qualitative evaluation methods and their application in the different phases of the software development cycle. As a result, students understand the importance of a user-centered approach and will be able to apply usability engineering methods and to plan and carry out an evaluation study.</p> <p>As an outcome, students will be able to evaluate and design interactive products appropriately for a given context of use.</p> <p>Students improve their problem-solving skills and their ability to work in a team through team-based project work, putting the contents of the module into practice.</p> |
| <b>Participation Prerequisites</b> | –  |

The previous section is filled only if there is **exactly one** module-concluding exam.

|   |   |
|---|---|
| <b>Consideration of Gender and Diversity Issues</b> | <ul style="list-style-type: none"> <li>✓ Use of gender-neutral language (THL standard)</li> <li>✓ Target group specific adjustment of didactic methods</li> <li>✓ Making subject diversity visible (female researchers, cultures etc.)</li> </ul> |
|---|---|

|                      |  |
|----------------------|--|
| <b>Applicability</b> | Compulsory module in the study program Information Technology and Design<br>Elective in other study programs |
| <b>Remarks</b>       | –  |

## Module Course: Usability / User Experience Design (Lecture)

(of Module: Usability / User Experience Design)

|   |                |                                |                  |
|---|----------------|--------------------------------|------------------|
| <b>Course Type</b>                                    | Lecture        | <b>Form of Learning</b>        | Presence         |
| <b>Mandatory Attendance</b>                           | no             | <b>ECTS Credit Points</b>      | 2                |
| <b>Participation Limit</b>                            |                | <b>Semester Hours per Week</b> | 2                |
| <b>Group Size</b>                                     |                | <b>Workload (hours)</b>        | 60               |
| <b>Teaching Language</b>                              | German/English | <b>Presence Hours</b>          | 30               |
| <b>Study Achievements<br/>("Studienleistung", SL)</b> |                | <b>Self-Study Hours</b>        | 30               |
| <b>SL Length (minutes)</b>                            |                | <b>SL Grading System</b>       | One-third Grades |

The following section is filled only if there is a course-specific exam.

|                                    |                         |                            |  |
|------------------------------------|-------------------------|----------------------------|--|
| <b>Exam Type</b>                   |                         | <b>Exam Language</b>       |  |
| <b>Exam Length (minutes)</b>       |                         | <b>Exam Grading System</b> |  |
| <b>Learning Outcomes</b>           | See general description |                            |  |
| <b>Participation Prerequisites</b> | –                       |                            |  |

The previous section is filled only if there is a course-specific exam.

|                   |  |
|-------------------|--|
| <b>Contents</b>   | <p>Fundamentals</p> <ul style="list-style-type: none"> <li>• Human Information Processing</li> <li>• Activity Theory</li> <li>• Errors and security-related behavior</li> <li>• Socio-technical design</li> </ul> <p>Interface Design</p> <ul style="list-style-type: none"> <li>• History of Human-Computer Interaction</li> <li>• Norms and standards</li> <li>• Design principles</li> <li>• Interaction paradigms and techniques</li> <li>• Dialogues</li> </ul> <p>Usability Engineering und Evaluation</p> <ul style="list-style-type: none"> <li>• Usability Engineering methods (user modeling, Scenario Based Development, prototyping methods etc.)</li> <li>• Expert evaluation methods</li> <li>• User-centric methods</li> <li>• Planning evaluation studies</li> </ul> |
| <b>Literature</b> | <p>Pratt, A., &amp; Nunes, J. (2012). Interactive design: An introduction to the theory and application of user-centered design. Rockport Pub.</p> <p>Norman, Donald (1988). The Psychology of Everyday Things. New York: Basic Books.</p>   |

Ritter, E. F., Baxter, D. G., & Churchill, F. E. (2014). Foundations for designing user-centered systems: What system designers need to know about people. Springer-Verlag London.

Shneiderman, B. (2022). Human-centered AI. Oxford University Press.

Stanton, N. A., Salmon, P. M., Rafferty, L. A., Walker, G. H., Baber, C., & Jenkins, D. P. (2017). Human factors methods: a practical guide for engineering and design. CRC Press.

ISO 9241 (2010). Ergonomics of human-system interaction. British Standards Institution.

|                |   |
|----------------|---|
| <b>Remarks</b> | – |
|----------------|---|

## Module Course: Usability / User Experience Design (Practical Training)

(of Module: Usability / User Experience Design)

|   |                    |                                |               |
|---|--------------------|--------------------------------|---------------|
| <b>Course Type</b>                                | Practical Training | <b>Form of Learning</b>        | Presence      |
| <b>Mandatory Attendance</b>                       | yes                | <b>ECTS Credit Points</b>      | 3             |
| <b>Participation Limit</b>                        |                    | <b>Semester Hours per Week</b> | 2             |
| <b>Group Size</b>                                 | 12                 | <b>Workload (hours)</b>        | 90            |
| <b>Teaching Language</b>                          | German/English     | <b>Presence Hours</b>          | 30            |
| <b>Study Achievements ("Studienleistung", SL)</b> |                    | <b>Self-Study Hours</b>        | 60            |
| <b>SL Length (minutes)</b>                        |                    | <b>SL Grading System</b>       | Participation |

The following section is filled only if there is a course-specific exam.

|                                    |   |                            |  |
|------------------------------------|---|----------------------------|--|
| <b>Exam Type</b>                   |   | <b>Exam Language</b>       |  |
| <b>Exam Length (minutes)</b>       |   | <b>Exam Grading System</b> |  |
| <b>Learning Outcomes</b>           | – |                            |  |
| <b>Participation Prerequisites</b> | – |                            |  |

The previous section is filled only if there is a course-specific exam.

|                   |   |
|-------------------|---|
| <b>Contents</b>   | During the semester, students work on a user-centered design project in small groups to apply HCI concepts and methods. This includes planning, implementation, documentation and presentation. They are continually supported in their project work by the lecturer. |
| <b>Literature</b> | See lecture description   |
| <b>Remarks</b>    | –   |