

Module Description

39-M-Inf-INT-adv-foc

Advanced Interaction Technology (focus)

Faculty of Technology

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This module guide reflects the current state and is subject to change. Up-to-date information and the latest version of this document can be found online via the page

<https://ekvv.uni-bielefeld.de/sinfo/publ/modul/543982456>

The current and valid provisions in the module guide are binding and further specify the subject-related regulations (German "FsB") published in the Official Announcements of Bielefeld University.

39-M-Inf-INT-adv-foc Advanced Interaction Technology (focus)

Faculty

Faculty of Technology

Person responsible for module

Dr. rer. nat. Thomas Hermann

Prof. Dr.-Ing. Stefan Kopp

Regular cycle (beginning)

Every semester

Credit points

10 Credit points

Competencies

In this module, students acquire in-depth knowledge of theories and models of interaction and communication as well as advanced technical methods in the areas of recognition, processing, learning or generation of interactive behaviour in artificial agents. After completing the module, students will be able to analyse multimodal interactive or communicative behaviour (e.g. language, emotions, non-verbal behaviour, coordinated action) and generate it accordingly in interaction systems. In the first part of the module, theoretical and methodological knowledge on one of the subject areas of interaction technology is acquired and practised in accompanying exercises. In the second part of the module, these methods are deepened in a seminar or lecture. You will have acquired both theoretical and methodological knowledge as well as the competence to deal with a topic independently (familiarisation, evaluation, implementation, oral presentation, written discussion).

Content of teaching

The module provides in-depth theoretical and methodological knowledge for the development of interactive human-machine systems. The teaching content of the module includes practically applied courses e.g. in the areas of brain-machine interfaces, social and collaborative robotics, intelligent assistance systems, dialogue systems, and conversational agents, natural language processing, multimodal behavior processing, explainable AI, dialogue theories, cognitive mechanisms of social interaction. The courses chosen by the student determine the specific teaching content of the module. The choice of the designated courses is based on personal interest.

Recommended previous knowledge

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Necessary requirements

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Explanation regarding the elements of the module

The module can be studied as follows:

The courses include an introductory lecture (2 CP) with the corresponding exercise (2 CP) + a seminar (2 CP) with the corresponding exercise (2 CP) from a related subject area.

OR

The courses include an introductory lecture (2 CP) with the corresponding exercise (2 CP) + an in-depth lecture (2 CP) with the corresponding exercise (2 CP) from a related subject area.

Justification for the necessity of two partial examinations:

Two partial examinations are necessary since the theoretical and mathematical competencies are tested in the written /oral examination and methodological knowledge as well as the competence of presenting and written examination of a topic are tested in the seminar.

Two partial examinations are necessary, as the first partial examination tests the respective theoretical and content-related competences and the second partial examination tests the subsequent methodological and/or in-depth knowledge.

Module structure: 2 bPr¹

Courses

Title	Type	Regular cycle	Workload ⁵	LP ²
Advanced Interaction Technology (focus): Introductory Lecture <i>To study together with a corresponding exercise from the field of Advanced Interaction Technology.</i>	lecture	WiSe&SoSe	60 h (30 + 30)	2 [Pr]
Advanced Interaction Technology (focus): Exercise 1 <i>To study together with the introductory course (seminar or lecture) from the field of Advanced Interaction Technology.</i>	exercise	WiSe&SoSe	60 h (30 + 30)	2
Advanced Interaction Technology (focus): Exercise 1 (Alternative) <i>To study together with the introductory course (seminar or lecture) from the field of Advanced Interaction Technology.</i>	exercise	WiSe&SoSe	60 h (15 + 45)	2
Advanced Interaction Technology (focus): In-depth Lecture <i>To study together with a corresponding exercise from the field of Advanced Interaction Technology.</i>	lecture	WiSe&SoSe	60 h (30 + 30)	2
Advanced Interaction Technology (focus): Seminar <i>To study together with a corresponding exercise from the field of Advanced Interaction Technology.</i>	seminar	WiSe&SoSe	60 h (30 + 30)	2

Advanced Interaction Technology (focus): Exercise 2 <i>To study together with the corresponding course (seminar or lecture) from the field of Advanced Interaction Technology.</i>	exercise	WiSe&SoSe	60 h (30 + 30)	2
Advanced Interaction Technology (focus): Exercise 2 (Alternative) <i>To study together with the corresponding course (seminar or lecture) from the field of Advanced Interaction Technology.</i>	exercise	WiSe&SoSe	60 h (15 + 45)	2

Examinations

Allocated examiner	Type	Weighting	Workload	LP ²
Teaching staff of the course Advanced Interaction Technology (focus): Introductory Lecture (lecture) Partial Examination 1 (Lecture + Exercise) <i>Portfolio with final examination consisting of:</i> 1) <i>Portfolio of exercises related to the content of the lecture</i> <i>Exercise tasks or programming tasks that are assigned in relation to the course (passing threshold: 50% of the achievable points). The assessment of the exercise tasks also includes direct questions regarding the solutions that must be answered by the students during the exercises. The instructor may require an individual explanation and demonstration of tasks and can replace a portion of the exercise tasks with in-person exercises. The exercise tasks within the portfolio are generally assigned weekly and serve to support the independent learning of implementations of the content presented in the seminar/in the lecture. Further specification, particularly regarding the time frame of the final examination, will be provided in the course description.</i> 2) <i>A final examination for the lecture</i> <i>The final examination regarding the content of the lecture refers to the exercise or programming tasks or develops from the competencies learned in the exercises.</i> <i>Lecture: Final exam (lasting 90-120 minutes) or oral final examination (lasting 20-30 minutes) covering the content conveyed in the lecture and developed in the exercises.</i> <i>The exam can alternatively be conducted as an e-exam, open book exam, or e-open book exam. In the case of open book and e-open book exams, the duration is 120-150 minutes.</i> <i>Both portfolio elements will be assessed by an examiner. A final overall assessment will be provided.</i>	Portfolio mit mündlicher Abschlussprüfung o. Portfolio mit schriftlicher Abschlussprüfung	1	30h	1
Lehrende der Veranstaltung Advanced Interaction Technology (focus): Vorlesung 2 ODER Lehrende der Veranstaltung Advanced Interaction Technology (focus): Seminar	Portfolio mit mündlicher Abschlussprüfung	1	30h	1

Partial Examination 2 upon Completion of Seminar + Exercise

Portfolio with final examination consisting of:

1) Portfolio of exercises related to the content of the seminar
 Exercise tasks or programming tasks that are assigned in relation to the course (passing threshold: 50% of the achievable points). The assessment of the exercise tasks also includes direct questions regarding the solutions that must be answered by the students during the exercises. The instructor may require an individual explanation and demonstration of tasks and can replace a portion of the exercise tasks with in-person exercises. The exercise tasks within the portfolio are generally assigned weekly and serve to support the independent learning of implementations of the content presented in the seminar/in the lecture. Further specification, particularly regarding the time frame of the final examination, will be provided in the course description.

2) A final examination for the seminar
 The final examination regarding the content of the seminar refers to the exercise or programming tasks or develops from the competencies learned in the exercises.

Seminar: Presentation (lasting 30–40 minutes) with written report (10-15 pages)

The students present, after coordinating the specific task with the examiner, the significance and systematic-scientific classification of a problem addressed in the seminar and explain and present their topic in writing in their report, incorporating aspects from the discussion in the seminar. The task may also include the elaboration of an application (i. e., programming/calculation, etc.) of a method to a typically practically significant individual case. The presentation with report refers to the content conveyed in the seminar and developed in the exercises.

Both portfolio elements will be assessed by an examiner. A final overall assessment will be provided.

Partial Examination 2 upon Completion of Lecture + Exercise

Portfolio with final examination consisting of:

1) Portfolio of exercises related to the content of the lecture
 Exercise tasks or programming tasks that are assigned in relation to the course (passing threshold: 50% of the achievable points). The assessment of the exercise tasks also includes direct questions regarding the solutions that must be answered by the students during the exercises. The instructor may require an individual explanation and demonstration of tasks and can replace a portion of the exercise tasks with in-person exercises. The exercise tasks within the portfolio are generally assigned weekly and serve to support the independent learning of implementations of the content presented in the seminar/in the lecture. Further specification, particularly regarding the time frame of the final examination, will be provided in the course description.

2) A final examination for the lecture
 The final examination regarding the content of the lecture refers to the exercise or programming tasks or develops from the competencies learned in the exercises.

o. Portfolio mit
 schriftlicher
 Abschlussprüfung



Lecture: Final exam (lasting 90-120 minutes) or oral final examination (lasting 20-30 minutes) covering the content conveyed in the lecture and developed in the exercises.

The exam can alternatively be conducted as an e-exam, open book exam, or e-open book exam. In the case of open book and e-open book exams, the duration is 120-150 minutes.

Both portfolio elements will be assessed by an examiner. A final overall assessment will be provided.

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Legend

- 1 The module structure displays the required number of study requirements and examinations.
 - 2 LP is the short form for credit points.
 - 3 The figures in this column are the specialist semesters in which it is recommended to start the module. Depending on the individual study schedule, entirely different courses of study are possible and advisable.
 - 4 Explanations on mandatory option: "Obligation" means: This module is mandatory for the course of the studies; "Optional obligation" means: This module belongs to a number of modules available for selection under certain circumstances. This is more precisely regulated by the "Subject-related regulations" (see navigation).
 - 5 Workload (contact time + self-study)
- SoSe** Summer semester
- WiSe** Winter semester
- SL** study requirement
- Pr** Examination
- bPr** Number of examinations with grades
- uPr** Number of examinations without grades