

Appendix 11(b)

Subject-specific appendix for the subject of Computer Science (dual-subject Bachelor's degree programme)

dated 17/07/2025*)

- Unofficial reading version -

The 30 credit point (CP) and 60 CP variant of the dual-subject Bachelor's degree programme in Computer Science offer the option of part-time study (see Section 4.2 of the BER). Part-time study is based on the currently applicable regulations for part-time studying at the University of Oldenburg.

The following abbreviations are used for class types in the module tables:

- PR: project
- S: seminar
- L: lecture
- E: exercise

A. 30 CP variant of the dual-subject Bachelor's degree in Computer Science

1. Purpose of the degree programme

The degree programme imparts basic knowledge of computer science, which in particular equips students for further study in the Master of Education (business education) programme. The aim is to obtain a basic academic qualification in computer science. Students also acquire the skills to reflect critically on computer science in educational contexts.

2. Recommendations

Students are encouraged to seek out a variety of experiences in educational contexts related to computer science (e.g., tutoring, extracurricular activities in school classes, study groups, informal discussions with students) and to strive to gain their own educational or methodological experience.

3. Curriculum

The programme comprises compulsory modules worth 24 CP and an elective module worth 6 CP. The compulsory modules are listed in Table 1 below.

Supplementary regulations regarding examination components can be found in Section C of this appendix.

*) There may be interim provisions for this version of the regulations, which may also affect you during the course of your degree programme. For more information, please read the official version of the regulations/amendments (Section II) in the official notices at: <https://uol.de/en/official-announcements>

Table 1: Overview of all compulsory modules

Module name	Type and number of teaching formats	CP	Type and number of module examinations
inf030 Programming, Algorithms and Data Structures	1 L 1 E	9	Written examination or oral examination or portfolio
inf031 Object-oriented Modelling and Programming	1 L 1 E	9	Written examination or oral examination or portfolio
inf700 Computer Science Education I	1 L 1 E	6	Oral examination
Total		24	

An elective module worth 6 CP must be selected from the Bachelor's modules in technical computer science (Table 2) **or** theoretical computer science (Table 3).

Table 2: Elective modules in technical computer science

Module name	Type and number of teaching formats	CP	Type and number of module examinations
inf200 Computer Engineering I	1 L 1 E	6	Written examination or oral examination or portfolio
inf201 Computer Engineering II	1 L 1 E	6	Written examination or oral examination
inf203 Embedded Systems I	1 L 1 E	6	Written examination or oral examination
inf204 Embedded Systems II	1 L 1 E	6	Written examination or oral examination
inf205 Formal Methods in Embedded System Design	1 L 1 E	6	project
inf207 Electrical Engineering	1 L 1 E	6	Written examination or oral examination
inf208 Microrobotics and Microsystems Technology	1 L 1 E	6	oral examination
inf209 Control Theory	1 L 1 E	6	Written examination or oral examination
inf210 Signal and Image Processing	1 L 1 E	6	Written examination or oral examination

Table 3: Elective modules in theoretical computer science

Module name	Type and number of teaching formats	CP	Type and number of module examinations
inf400 Theoretical Computer Science: Logic	1 L 1 E	6	Written examination or oral examination
inf401 Foundations of Theoretical Computer Science	1 L 1 E	6	Written examination or oral examination

B. 60 CP variant of the dual-subject Bachelor's degree in Computer Science**1. Bachelor's degree**

School II: Mathematics and Science offers the subject of Computer Science as a Bachelor of Science (B.Sc.) degree, in accordance with Section 3 of the BER.

2. Purpose of the degree programme

Students acquire basic knowledge in the areas of practical computer science and technical computer science, which in particular form the prerequisite for specialisation in the Master of Education (for grammar and general secondary school teaching) programme in Computer Science. The aim is to obtain a basic academic qualification in computer science. Students also acquire the skills to reflect critically on computer science in educational contexts.

3. Recommendations

Students are encouraged to seek out a variety of experiences in educational contexts related to computer science (e.g., tutoring, extracurricular activities in school classes, study groups, informal discussions with students) and to strive to gain their own educational or methodological experience.

4. Curriculum

The dual-subject Bachelor's degree programme in Computer Science, comprising 60 CP, prepares students for the general teacher training programme. The programme comprises basic modules worth 30 CP, advanced modules worth 18 CP and the compulsory elective area in practical specialisation in computer science worth 12 CP.

Supplementary regulations regarding examination components can be found in Section C of this appendix.

The basic modules are:

- mat950 Discrete Mathematics (6 CP)
- inf030 Programming, Algorithms and Data Structures (9 CP)
- inf031 Object-oriented Modelling and Programming (9 CP)
- inf200 Computer Engineering I (6 CP)

The advanced modules are:

- inf700 Computer Science Education I (6 CP)
- inf005 Software project (6 CP)
- inf007 Information Systems I (6 CP)

In addition, 12 CP from the elective practical specialisation area must be studied.

5. Basic curriculum

The basic curriculum provides students with the fundamental knowledge and skills required for the successful study of computer science. The focus here is on the concept of algorithms and their application to software development (modules inf030 and inf031). In addition, mathematical (mat950) and technical fundamentals (inf200) are covered. The following basic modules must also be studied as compulsory modules:

Table 4: Overview of basic curriculum modules

Module name	Module type	Type and number of teaching formats	CP	Type and number of module examinations
inf030 Programming, Algorithms and Data Structures	Comp.	1 L 1 E	9	Written examination or oral examination or portfolio
inf031 Object-oriented Modelling and Programming	Comp.	1 L 1 E	9	Written examination or oral examination or portfolio
inf200 Computer Engineering I	Comp.	1 L 1 E	6	Written examination or oral examination or portfolio
mat950 Discrete Mathematics	Comp.	1 L 1 E	6	Written examination or oral examination
Total			30	

6. Consecutive curriculum

The aim of this curriculum is to expand on the skills and knowledge acquired in the basic curriculum. The module inf700 Computer Science Education I introduces the central concepts and methods of didactics in computer science. The compulsory elective area in practical specialisation (Table 6) enables students to gain an in-depth understanding of topics in computer science. In the consecutive curriculum, compulsory modules worth 18 CP from Table 5 and elective modules worth 12 CP from Table 6 must be studied.

Table 5: Overview of compulsory modules in consecutive curriculum

Module name	Module type	Type and number of teaching formats	CP	Type and number of module examinations
inf005 Software Engineering I	Comp.	1 L 1 E	6	Written examination or oral examination or portfolio
inf700 Computer Science Education I	Comp.	1 L 1 E	6	Oral examination
inf007 Information Systems I	Comp.	1 L 1 E	6	Written examination or oral examination
Total			18	

Table 6: Compulsory elective area "Practical specialisation"

Module name	Module type	Type and number of teaching formats	CP	Type and number of module examinations
inf004 Software project	Comp. elective	1 L 1 E 1 PR	9	Portfolio
inf009 Database Practical	Comp. elective	1 E	6	Practical exercise
inf018 Media Processing	Comp. elective	1 L 1 E	6	1 project and 1 oral examination or 1 project and 1 written examination
inf021 Advanced Java Technology Practical	Comp. elective	1 L 1 E	6	Practical exercise
inf202 Computer Engineering Practical	Comp. elective	1 P	6	Portfolio
inf800 Proseminar in Computer Science	Comp. elective	1 S	3	Formal presentation
inf808 Current Topics in Computer Science	Comp. elective	1 class: lecture, seminar, practical or project	3	Portfolio or formal presentation or oral examination or written examination
inf803 Special Topics in Computer Science I	Comp. elective	2 classes: lecture, exercise, seminar, practical or project	6	Portfolio or formal presentation or oral examination or written examination
inf804 Special Topics in Computer Science II	Comp. elective	2 classes: lecture, exercise, seminar, practical or project	6	Portfolio or formal presentation or oral examination or written examination
Total			12	

7. Bachelor's thesis module in Computer Science

The Bachelor's thesis module consists of a Bachelor's thesis in Computer Science or a second subject worth 12 CP and an accompanying seminar with guidance on academic work worth 3 CP.

Module name	Type and number of teaching formats	CP	Type and number of module examinations
bam Bachelor's thesis module	1 S	15	Preparing the thesis

In consultation with the examiners, the Bachelor's thesis may also be written in English.

In the seminar within the Bachelor's thesis module, the technical fundamentals of the thesis are discussed and progress and results are reported; this includes, in particular, the final presentation of the thesis ('defence').

Section C: Supplementary subject-specific regulations on examination components

(1) In examinations, free attempts to improve grades may be taken in accordance with Section 15.5 of these regulations.

- (2) Written examinations usually last between 75 and 180 minutes.
- (3) Oral examinations usually last between 20 and 60 minutes.
- (4) A term paper usually comprises a maximum of 25 pages.
- (5) A formal presentation consists of a presentation lasting no longer than 45 minutes and a written elaboration no more than 12 pages in length.
- (6) A portfolio comprises two to five pieces of work. The following assignments may be included: short oral test (max. 15 minutes), short written test (max. 60 minutes), short formal presentation (max. 15 minutes and 10 pages of written elaboration), exercises, a project report and minutes.
- (7) Practical exercises (in accordance with Section 11.9) may include a short oral examination or a project presentation.
- (8) A project (in accordance with Section 11.13) consists of the IT implementation of a project task, including:
 - an informal presentation lasting around 30 minutes,
 - documentation (with interim results, if applicable)
 - and a final discussion lasting around 30 minutes.
- (9) Examinations can take the form of multiple choice questions either in part or in whole.
- (10) The grade for a passed module examination can be improved by a maximum of one partial grade step (0.3 or 0.4) through bonus points. Bonus points are course-related examination components as described for the portfolio. The rules for bonus points are announced in class at the beginning of the module. It must be possible to achieve the highest grade without bonus points.
- (11) The grade for a passed module examination can be improved by a maximum of one partial grade step (0.3 or 0.4) through so-called bonus points in the form of practical exercises. Bonus points are course-related examination components as described for the portfolio. The rules for bonus points are announced in class at the beginning of the module. It must be possible to achieve the highest grade without bonus points.