Course Handbook Digital Business and IT Bachelor

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Qualifikation Goals of Study Programme

Digital Business and IT Bachelor - mandatory courses (overview)

Module name (EN)	Code	SAP-P	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator
Business and Technical English	WINF-B25-150	P460-0006	1	2V+2U	5	Prof. Dr. Thomas Tinnefeld
Computer Science / Programming	WINF-B25-160	P460-0005	1	2V+2U	5	Prof. Dr. Daniel F. Abawi
Cost Accounting and the Basics of Management Accounting	WINF-B25-310	P460-0013	3	2V+2U	5	Prof. Dr. Stefan Georg
General Business Administration	WINF-B25-110	P460-0002	1	2V+2U	5	Prof. Dr. Stefan Georg
Mathematics 1	WINF-B25-130	P460-0004	1	4V+2U	5	Prof. Dr. Frank Kneip
Private Commercial Law	WINF-B25-220	P460-0021	2	2V+2U	5	Prof. Dr. Esther Bollhöfer

(6 modules)

Digital Business and IT Bachelor - optional courses (overview)

Module name (EN)	Code	SAP-P	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator

(0 modules)

Digital Business and IT Bachelor - mandatory courses

Business and Technical English

Module name (EN): Business and Technical English
Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025
Module code: WINF-B25-150
Hours per semester week / Teaching method: 2V+2U (4 hours per week)
ECTS credits: 5
Semester: 1
Mandatory course: yes
Language of instruction: German
Assessment: Exam [*updated 15.04.2024*]
Applicability / Curricular relevance: WIB21-510 (P450-0282) Industrial Engineering, Bachelor, ASPO 01.10.2021 , semester 5, mandatory course WINF-B23-160 (P460-0006) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 1, mandatory course WINF-B25-150 (P460-0006) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 1, mandatory course
Workload: 60 class hours (= 45 clock hours) over a 15-week period. The total student study time is 150 hours (equivalent to 5 ECTS credits). There are therefore 105 hours available for class preparation and follow-up work and exam preparation.
Recommended prerequisites (modules): None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Thomas Tinnefeld

Lecturer:
Corinna Huth

[*updated 21.11.2025*]

Learning outcomes:
After successfully completing this module, students will:
Be able to apply advanced reading comprehension techniques in order to read longer written texts in a foreign language with economic and technical content and to decode the points of view expressed therein - with regard to both global and detailed comprehension.
Have acquired business and technical vocabulary and be able to use it productively in their own spoken and written texts, including writing emails, letters of complaint, business reports and proposals.
Be able to deal in-depth with the intercultural characteristics of the target language countries and to apply the acquired intercultural awareness to a considerable range of concrete situations in encounters with representatives of these cultures and to implement them adequately in terms of communication.
Be able to intellectually analyze relevant spoken and written business English texts and independently understand concrete examples of these.

[*updated 15.04.2024*]

Module content:
The content includes:
Business-related skills relevant to working life, e.g:
Business etiquette and business travel
Intercultural communication
Making telephone calls
Behavior in meetings
Preparation and negotiating
Technical matters, e.g:
Linguistic behavior in production and operation
Material technology
Assessment of energy sources and their sustainability
Technology and innovations
Writing skills: Creation of, for example:
E-mail correspondence
Letters of complaint
Annual reports
Minutes of meetings
Practicing presentation techniques
Teaching vocabulary for the above-mentioned areas
Expanding students´ command of grammar and, if necessary, repeating areas where improvement is required

[*updated 15.04.2024*]

Teaching methods/Media:
Partner work
Group work phases where students tackle specific tasks

Interactive, multimedia language lab
Short talks by the students
Using artificial intelligence as a learning partner

[*updated 15.04.2024*]

Recommended or required reading:
Recommended literature will be announced at the beginning of the semester.

[*updated 15.04.2024*]

Computer Science / Programming

Module name (EN): Computer Science / Programming

Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025

Module code: WINF-B25-160

Hours per semester week / Teaching method:
2V+2U (4 hours per week)

ECTS credits:
5

Semester: 1

Mandatory course: yes

Language of instruction:
German

Assessment:
Exam

[*updated 30.04.2025*]

Applicability / Curricular relevance:

WIB21-340 (P450-0287) Industrial Engineering, Bachelor, ASPO 01.10.2021 , semester 3, mandatory course
WINF-B23-150 (P460-0005) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 1, mandatory course
WINF-B25-160 (P460-0005) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 1, mandatory course

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 150 hours (equivalent to 5 ECTS credits).
There are therefore 105 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:
WINF-B25-350
WINF-B25-360
WINF-B25-520
WINF-B25-530

[*updated 19.11.2025*]

Module coordinator:
Prof. Dr. Daniel F. Abawi

Lecturer: Prof. Dr. Daniel F. Abawi

[*updated 24.07.2023*]

Learning outcomes:
Principles of computer science:
After successfully completing this module students will:
be able to explain and categorize basic computer science knowledge with a focus on practical computer science
be able to understand and describe the basic structure of programs
be able to explain and partially implement the conversion of a business problem into an algorithm, from modeling to technical implementation

Programming:
After successfully completing this module, students will:
be able to independently integrate practical, business-related tasks into a programmable implementation concept
be able to map processes and structures using Unified Modeling Language (UML) and model business processes accordingly
gain practical experience in using the object-oriented programming language Python

[*updated 30.04.2025*]

Module content:
Principles of computer science:
1. History and sub-areas of computer science
2. Storing and interpreting information / encodings
a. Positional number systems
b. Computing with dual numbers
c. Data compression
d. Fault-tolerant codes
3. From program to machine program
4. Programming languages
a. Data types and operators
b. Control structures
c. Propositional logic
d. Object orientation
5. Data structures and algorithms
6. Computer networks and the WWW

7. Software engineering
a. UML diagrams (static and dynamic behavior of information systems)
b. Process models

Programming:
Basics
1. Objects and classes
2. Data types and basic operators
3. Class definitions and inheritance
4. Object interaction
5. Control structures
6. Using class libraries
7. Class design
8. Structured design of simple programs
9. Elements of software engineering
10. Documentation and tools for teamwork

[*updated 30.04.2025*]

Teaching methods/Media:
Principles of computer science:
Projector, slides, exercises, lecture notes

Programming:
Projector, slides (lecture notes), independent and guided exercises and sample solutions. Only open source software will be used.

[*updated 30.04.2025*]

Recommended or required reading:
Principles of computer science:
Herold, H.; Lurz, B.; Wohlrab, J.: Grundlagen der Informatik, Pearson Studium Verlag, 2017
Hartmut, Ernst: Grundkurs Informatik, 4. Auflage, Vieweg+Teubner Verlag, 2016
Your own lecture notes

Programming:
Herold, H.; Lurz, B.; Wohlrab, J.: Grundlagen der Informatik, Pearson Studium Verlag, 2017
Your own lecture notes

Further recommendations regarding literature or for example, web articles will be made by the lecturer in the course.

[*updated 30.04.2025*]

Cost Accounting and the Basics of Management Accounting

Module name (EN): Cost Accounting and the Basics of Management Accounting

Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025

Module code: WINF-B25-310

Hours per semester week / Teaching method:
2V+2U (4 hours per week)

ECTS credits:
5

Semester: 3

Mandatory course: yes

Language of instruction:
German

Assessment:
Exam

[*updated 23.09.2025*]

Applicability / Curricular relevance:

WIB21-310 (P450-0290) Industrial Engineering, Bachelor, ASPO 01.10.2021 , semester 3, mandatory course
WINF-B23-310 (P460-0013) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 3, mandatory course
WINF-B25-310 (P460-0013) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 3, mandatory course

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 150 hours (equivalent to 5 ECTS credits).
There are therefore 105 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Stefan Georg

Lecturer: Prof. Dr. Stefan Georg

[*updated 24.07.2023*]

Learning outcomes:
After successfully completing this module, students will:
be able to describe and understand the tasks and structure of operational cost accounting
be able to work on (simple) problems within the cost accounting system and find solutions
be able to systematize cost types and calculate the amount of material costs, personnel costs, and imputed costs
be able to perform internal cost allocation as part of cost center accounting using a cost allocation sheet.
be able to perform cost unit calculations based on standard calculation methods
be able to apply selected controlling tools such as simple and multi-level contribution margin accounting

and interpret their results

[*updated 23.09.2025*]

Module content:
1. Basic concepts of accounting
2. Cost allocation principles
3. Structure of cost accounting systems
4. Cost element accounting (in particular personnel costs, material costs, depreciation)
5. Cost center accounting (in particular operating statement, internal cost allocation)
6. Cost object accounting (in particular division costing, surcharge calculation, joint cost allocation, price calculation)
7. Selected management accounting methods: Contribution costing (single-level and multi-level structure, areas of application)

The theoretical aspects of all topics will be presented in a logical order and consolidated through numerous exercises.

[*updated 23.09.2025*]

Teaching methods/Media:
Students will receive a catalog of questions, a catalog of exercises, and a complete schedule indicating which questions and exercises are to be prepared independently by the students using literature/sources during which week of the module. The lecture will be supported digitally by detailed teaching materials (e.g., video files, audio files, learning snacks, specialist texts, quizzes, glossary), which will be made available via the university´s e-learning system. In the exercise session, the students´ solutions to extensive exercise questions will be discussed and open questions answered. In other words, there will be no traditional frontal teaching, but instead students will be coached.

[*updated 23.09.2025*]

Recommended or required reading:
Georg, Stefan: Produktkalkulation, aktuelle Auflage
Georg, Stefan: Das Übungsbuch zur Kostenrechnung, aktuelle Auflage
Langenbeck, Jochen.: Kosten- und Leistungsrechnung, aktuelle Auflage
Wöltje, Jörg: Kosten- und Leistungsrechnung, aktuelle Auflage

[*updated 23.09.2025*]

General Business Administration

Module name (EN): General Business Administration

Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025

Module code: WINF-B25-110

Hours per semester week / Teaching method:
2V+2U (4 hours per week)

ECTS credits:
5

Semester: 1

Mandatory course: yes

Language of instruction:
German

Assessment:
Written exam

[*updated 23.09.2025*]

Applicability / Curricular relevance:

WIB21-110 (P450-0278) Industrial Engineering, Bachelor, ASPO 01.10.2021 , semester 1, mandatory course
WINF-B23-110 (P460-0002) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 1, mandatory course
WINF-B25-110 (P460-0002) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 1, mandatory course

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 150 hours (equivalent to 5 ECTS credits).
There are therefore 105 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Stefan Georg

Lecturer:
Dozierende des Studiengangs

[*updated 18.11.2025*]

Learning outcomes:
After successfully completing this module, students will:
be able to explain the basic concepts of business administration and apply them to individual areas of a company
demonstrate a fundamental understanding of entrepreneurial thinking and action for the individual sub-areas of business administration, particularly with regard to corporate goals
be able to explain current topics in business administration, such as sustainability, digitalization, or the use of AI in companies
be able to draw initial conclusions by using the terms and concepts learned for simple business questions

[*updated 23.09.2025*]

Module content:

1. Basic business knowledge (economic cycle, types of goods, economic sectors, factors of production, economic principles, effectiveness and efficiency, corporate goals, location factors)
2. Corporate structure (legal forms, partnerships, corporations, mergers, cartels, employees)
3. Organization (organizational structure, process organization, branches & subsidiaries, franchising)
4. Personnel and work (personnel management, personnel requirements, recruitment, working time models, remuneration, co-determination, gender equality)
5. Operational functions (value chain, procurement, manufacturing, marketing, sales)
6. Accounting (flow variables, external accounting, internal accounting, balance sheet structure, cost accounting system structure)
7. Investment and financing (types of investment, investment objectives, financing options, capital market, stock exchange, shares, cost average effect)
8. Controlling & taxation (big data, key performance indicators, balanced scorecard, corporate taxes, sales tax, income tax)
9. Digitalization in companies (digital business models, digital marketing, AI and machine learning, digital payment systems)
10. Sustainability (sustainability goals, climate protection, CO2 trading, e-mobility, renewable energies)

[*updated 23.09.2025*]

Teaching methods/Media:
The individual topics will be illustrated and explored in greater depth through real-life company reports and press quotes, as well as exercises. We will focus on using the terms and tools learned. A book accompanying the lecture will be published.

[*updated 23.09.2025*]

Recommended or required reading:
Amely, Krickhahn: BWL für Dummies. Wiley-VCH, aktuelle Auflage
Georg: Wirtschaft verstehen. Grundlagen und aktuelle Themen der Betriebswirtschaftslehre. Epubli, aktuelle Auflage
Hutzschenreuter: Allgemeine Betriebswirtschaftslehre. Grundlagen mit zahlreichen Praxisbeispielen. Springer, aktuelle Auflage
Opresnik, Rennhak: Allgemeine Betriebswirtschaftslehre. Grundlagen unternehmerischer Funktionen. Springer, aktuelle Auflage
Wöhe, Döring et al.: Einführung in die Allgemeine Betriebswirtschaftslehre. Vahlen, aktuelle Auflage

[*updated 23.09.2025*]

Mathematics 1

Module name (EN): Mathematics 1

Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025

Module code: WINF-B25-130

Hours per semester week / Teaching method:
4V+2U (6 hours per week)

ECTS credits:
5

Semester: 1

Mandatory course: yes

Language of instruction:
German

Assessment:

[*updated 16.11.2023*]

Applicability / Curricular relevance:

WINF-B23-140 (P460-0004) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 1, mandatory course
WINF-B25-130 (P460-0004) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 1, mandatory course

Workload:
90 class hours (= 67.5 clock hours) over a 15-week period.
The total student study time is 150 hours (equivalent to 5 ECTS credits).
There are therefore 82.5 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:
WINF-B25-230
WINF-B25-330

[*updated 20.11.2025*]

Module coordinator:
Prof. Dr. Frank Kneip

Lecturer:
Dozierende des Studiengangs

[*updated 20.11.2025*]

Learning outcomes:
After successfully completing this module, students will be able to mathematically model technical and business-related problems. They will be able to apply the mathematical techniques of differentiation and integration in one variable to given functions (abstract questions) and to concrete commercial and technical questions. They will be able to construct linear systems of equations from verbal problems and solve them. Students will be able to derive linear optimization models from verbal problems and solve them graphically.

They will be able to give examples of applications for mathematical methods from business informatics. They will have improved their collaboration skills by working on the mathematical material in learning teams according to the didactic concept of learning team coaching during the semester and by working on and presenting exercises.
The presentations help students improve their communication skills. They will have improved their reflection skills in feedback discussions with fellow students and the teacher. Students will have improved their self-organization skills by working according to the inverted classroom concept.

[*updated 19.05.2025*]

Module content:
1. Basic arithmetic techniques (quadratic equations, power, root and logarithm laws, complete induction)
2. Differential calculus and its applications
3. Integral calculus and its applications
4. Sequences
5. Series
6. Financial mathematics
7. Vectors and matrices
8. Linear optimization

[*updated 16.11.2023*]

Teaching methods/Media:
Seminar (Lernteamcoaching), exercises, lecture notes, Lernvideos

[*updated 16.11.2023*]

Recommended or required reading:
- Papula, L.: Mathematik für Ingenieure, SpringerVieweg Verlag
- Pulham, S.: Wirtschaftsmathematik, Gabler Verlag
- Tietze, J.: Wirtschaftsmathematik, Vieweg Verlag
Always the latest edition.

[*updated 16.11.2023*]

Private Commercial Law

Module name (EN): Private Commercial Law

Degree programme: Digital Business and IT, Bachelor, SO 01.10.2025

Module code: WINF-B25-220

Hours per semester week / Teaching method:
2V+2U (4 hours per week)

ECTS credits:
5

Semester: 2

Mandatory course: yes

Language of instruction:
German

Assessment:
Exam

[*updated 29.04.2024*]

Applicability / Curricular relevance:

WIB21-420 (P450-0308) Industrial Engineering, Bachelor, ASPO 01.10.2021 , semester 4, mandatory course
WINF-B23-420 (P460-0021) Digital Business and IT, Bachelor, SO 01.10.2023 , semester 4, mandatory course
WINF-B25-220 (P460-0021) Digital Business and IT, Bachelor, SO 01.10.2025 , semester 2, mandatory course

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 150 hours (equivalent to 5 ECTS credits).
There are therefore 105 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:
WINF-B25-430

[*updated 17.11.2025*]

Module coordinator:
Prof. Dr. Esther Bollhöfer

Lecturer:
Dozierende des Studiengangs

[*updated 11.11.2025*]

Learning outcomes:
After successfully completing this module students will
- be familiar with the most important types of contracts in commercial law, in particular sales law and its right of warranty
- be familiar with commercial and corporate law
- be familiar with the functions and mechanisms of business, commercial and corporate law
- understand the law as one of the basic conditions for entrepreneurial activity and the relevance of the regulations for business practice
- be able to incorporate legal considerations into the operational of a company
- will be able to handle relevant legal texts independently
- will be able to develop proposals for solutions to specific cases relating to purchase, commercial and corporate law, by classifying the problem, subsuming the facts under the characteristics of the relevant regulations and deriving the result therefrom
- will have developed drafting proposals for simple legal transactions,

- be able to evaluate and review the results based on general legal value judgements.

[*updated 29.04.2024*]

Module content:
1. Civil law
- Law, the legal system, law enforcement
- Legal entities in private law
- Freedom of contract and its limits, abstraction principle
- Legal transactions and declaration of intent
- All about contracts (introduction, steps involved in concluding a contract, effect of the contract, special features of a consumer contract)
- Basic features of the law on general terms and conditions (definition, inclusion, reference to content control)
- Agency according to BGB
- Destruction and nullity of legal transactions (selected topics, including nullity due to lack of form)
- Debtor and creditor, cession, joint and several liability
- Performance by the seller (place of performance, transfer of risk, time of performance, retention of title)
- Performance by the buyer (payment, set-off)
- Statutory limitation
- Laws governing performance disruptions using the purchase contract as an example (withdrawal and compensation for damages according to BGB, warranty for material defects according to BGB)
- Overview of special obligations and a selection of important contract types (purchase contract, contract for work and services and contract for work and materials)

2. Principles of commerical law
- Significance, tasks and functions,
- Merchant status
- The appearance of merchants and the protection of legal transactions (company name, commercial and business register)
- Conclusion of contracts by dependent auxiliary persons (procuration, power of attorney)
- Basic features of commercial transactions (in particular § 377 HGB)

3. Principles of corporate law
- Types of enterprises for economic purposes and their selection
- Overview of the most important corporate forms
- Overview of partnerships
- Corporations based on the example of the GmbH

[*updated 29.04.2024*]

Teaching methods/Media:
Interactive lecture with integrated tutorial (Solving legal issues)
Visualization by means of transparencies
Learning material from the internal eLearning management system

[*updated 29.04.2024*]

Recommended or required reading:
- Brox, H. / Walker, W.-D. Allgemeines Schuldrecht. München: C. H. Beck, aktuelle Auflage
- Brox, H./Walker, W.-D., Besonderes Schuldrecht. München: C. H. Beck, aktuelle Auflage
- Brox, H. / Henssler, M., Handelsrecht. München: C. H. Beck, aktuelle Auflage
- [Führich, E., Wirtschaftsprivatrecht. München: Franz Vahlen, 13. Auflage 2017, teilweise überholt]
- Führich, E./Werdan, I. Wirtschaftsprivatrecht in Fällen und Fragen. München: Franz Vahlen, aktuelle Auflage

- Gildeggen, R. u. a. Wirtschaftsprivatrecht: Kompaktwissen für Betriebswirte. Berlin; Boston: de Gruyter Oldenbourg, aktuelle Auflage (e-book in htwsaar-Bibliothek)
- Güllemann, D. Wirtschaftsprivatrecht: BGB Allgemeiner Teil, Schuldrecht, Sachenrecht, Handels- und Gesellschaftsrecht. München: Franz Vahlen, aktuelle Auflage
- Kindler, P., Grundkurs Handels- und Gesellschaftsrecht. München: C. H. Beck, aktuelle Auflage
- Metzler-Müller, K. Wie löse ich einen Privatrechtsfall. Stuttgart: Boorberg, aktuelle Auflage
- Saenger, I., Gesellschaftsrecht. München: Franz Vahlen, aktuelle Auflage

[*updated 29.04.2024*]

Digital Business and IT Bachelor - optional courses