

Business Information Systems (F000447)

Course size (nominal values; actual values may depend on programme)
 Credits 7.0 Study time 210 h Contact hrs 75.0 h

Course offerings and teaching methods in academic year 2018-2019

Offering	Language	Teaching Method	Hours
A (semester 1)	Dutch, English	lecture	30.0 h
		seminar: practical PC room classes	5.0 h
		group work	30.0 h
		lecture: plenary	10.0 h
		exercises	30.0 h
E (semester 1)	English	project	30.0 h
		lecture: plenary	10.0 h
		exercises	30.0 h
		seminar: practical PC room classes	5.0 h
		lecture	2.5 h
		group work	30.0 h
		lecture: response	7.5 h
lecture	30.0 h		
		project	30.0 h
		guided self-study	20.0 h

Lecturers in academic year 2018-2019

Poels, Geert EB24 lecturer-in-charge

Offered in the following programmes in 2018-2019

Programme	crdts	offering
Bachelor of Science in Economics	7	A
Bachelor of Science in Business Engineering	7	A
Bachelor of Science in Business Economics	7	A
Linking Course Master of Science in Business Economics	7	A
Preparatory Course Master of Science in Business Economics	7	E
Preparatory Course Master of Science in Business Engineering	7	E
Preparatory Course Master of Science in Business Economics	7	A
Preparatory Course Master of Science in Business Engineering	7	A

Teaching languages

Dutch, English

Keywords

Information systems development, business process modelling, conceptual modelling, database development, programming of database-applications, implementation of relational database systems, SQL, noSQL databases, enterprise information systems and applications, ERP, Business Process Management

Position of the course

In this course students get acquainted with complex issues concerning the development of organisational information systems for storing and processing structured data (e.g., transactional data, masterdata) in the context of executing and managing business processes (i.e., Business Process Management). The focus is on the systematic development of relational databases systems, in which both relational database technology and several established and modern techniques of

data modelling (ER, EER, UML), database modelling (relational model, SQL-DDL) and database usage/querying (SQL-DML, SQL-DQL) are studied and practiced. These techniques are complemented with a study of process modelling (Petri Nets, BPMN). On the side we also pay attention to the storage and processing of non-structured data (e.g., big data) by using noSQL techniques. An other objective of this course is to develop skills concerning database design and -management, and systems development by means of exercises on the PC and a project in groups.

Contents

Theoretical part:

- Chapter I: Business Process Modeling
- Chapter II: Data Modelling
- Chapter III: Database Design
- Chapter IV: Databasemanagement
- Applications: guest lecture

Practical part :

- Modelling exercises (ER, BPMN)
- Design of databases and queries (data map, SQL)
- Development of end-user databases with Access (students TEW) or MySQL (students HIR)

Students TEW: Group assignment (integrated application of the theoretical and practical part):

- Modelling, designing, programming and testing of a relational database system in groups using UML, BPMN, data map, SQL and Access

Students HIR: Group assignment / project (integrated application of the theoretical and practical part of F000447 Business Information Systems & F000888 Algorithms and Data Structures)

- The project is jointly organized with the course Algorithms and Data Structures. The goal of the project is the analysis, design and implementation of an information system in Java that uses a relational database. The project has two parts:
 - Analysis of the information system & modeling, designing and implementing a relational database;
 - Designing, programming and testing an information system that complies to the analysis of part one and that uses the relational database developed in part one.

Initial competences

- Students Applied Economics: Informatics.
- Students Business Engineering: Informatics & Object-Oriented Programming

Final competences

- 1 Be able to develop conceptual models (business process models, data models) and understand and analyze conceptual models
- 2 Be able to design, implement and manage a database-oriented and process-aware information system

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, group work, lecture, project, lecture: plenary exercises, seminar: practical PC room classes, lecture: response lecture

Extra information on the teaching methods

Session A:

- Ex cathedra for theory chapters I to IV plus guest lecture on applications
- Plenary practice sessions process modeling, data modeling, database design and SQL
- computer class sessions Access (students TEW) and MySQL (students HIR)
- Group assignment: developing a database-oriented enterprise information system (students TEW)
- Project: programming in Java of an information system that uses a relational database (jointly with F000888 Algorithms and Data Structures) (students HIR)

Session E:

- Guided self-study for chapters I to IV of the theoretical part. A syllabus will guide the students in their study. Individual feedback is possible. Questions and answers via online forum on MINERVA.
- Guest lecture on applications.
- Plenary practice sessions process modeling, data modeling, database design and

SQL

- computer class sessions Access (students Business Economics) and MySQL (students Business Engineering)
- Group assignment information systems development as integrated application of the theoretical and practical parts (students Business Economics)
- Project programming in Java of an information system that uses a relational database (as integrated application F000447 Business Information Systems & F000888 Algorithms and Data Structures) (students Business Engineering)

Some course activities will be organized together session A. The languages for these activities is English.

Learning materials and price

Aanbodsessie A:

For TEW and HIR

- Course materials on Minerva:
 - Powerpoint presentations of the theoretical and practical course sessions
 - Additional course notes
 - Solutions of exercises
 - Material w.r.t. exercises and project/group assignment

Additional for TEW

- textbook MS Access, Eddy Van den Broeck en Erik Cuypers. published by de boeck.

Additional for HIR

- additional course materials on MySQL, Java and JDBC (via Minerva)

Aanbodsessie E:

For students Preparatory Course Master in Business Economics and Preparatory Course Master in Business Engineering:

Course materials made available on Minerva:

- Powerpoint presentations
- A reader with papers, course notes, book chapters, ...
- A study guideline for how to use the reader
- Solutions of exercises
- Material w.r.t. exercises and project/group assignment

Additionally for students Preparatory Course Master in Business Economics

- additional course materials Access (via Minerva)

Additionally for students Preparatory Course Master in Business Engineering

- additional course materials MySQL, Java and JDBC (via Minerva)

References

Links to relevant literature and research (including research of the UGent Business Informatics research group) are made available (via Minerva)

Course content-related study coaching

via Minerva: Forum, Student Publications, Dropbox
Individual guidance is possible

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Open book examination

Examination methods in case of periodic evaluation during the second examination period

Open book examination

Examination methods in case of permanent evaluation

Oral examination, assignment, peer assessment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Periodic evaluation: A written open book exam with multiple choice questions and open answer questions, which evaluates knowledge of and critical understanding of the material taught as well as the ability to apply it.

Permanent evaluation: evaluation of the group assignment (TEW) or project (HIR) based on the report, the end result of the system development, feedback through peer assessment, and the presentation of the result.

Students TEW: The ability to independently develop in a group of students a relational databasesystem is assessed.

Students HIR: The evaluation is an integrated evaluation and is part of the evaluation for the courses F000447 Business Information Systems and F000888 Algorithms and Data Structures. The ability to independently analyse, design, program (Java) and test in a group of students a database-oriented information system is assessed.

For the group assignment (TEW) or project (HIR) the second chance exam is a computer exam which covers Access for TEW students and MySQL, JDBC and Java for HIR students.

Calculation of the examination mark

Score1: score open book exam. The Ghent University standard setting will be used to score the multiple choice questions.

Score2: Score project work (second chance: score PC exam)

Final score = $0.6 * \text{Score1} + 0.4 * \text{Score2}$

Facilities for Working Students

No participation in the project work required. Instead they prepare for an additional computer exam Access (TEW students) or Java, JDBC and MySQL (HIR students)