Programme-specific Annex to the Teaching and Examination Regulations for the Bachelor's programme in Business & IT

The rules in this Annex are part of the programme portion of the Student Charter, including the Teaching and Examination Regulations for the Bachelor's programme in Business & IT offered by the Faculty of Electrical Engineering, Mathematics and Computer Science of the University of Twente.

1. CONTENTS AND STRUCTURE OF THE PROGRAMME

1.1 General objectives of the programme (Article 7.13, paragraph 2c of the Higher Education and Research Act)

The Bachelor's programme in Business & IT (BIT) focuses on providing academic training to Bachelor's students to enable them to graduate with knowledge, insight and experience in the integrated and coordinated development of business processes in organizations and associated information and communication technology support structures. The graduates have thorough understanding and insight into the academic disciplines of Computer Science and Industrial Engineering and Management, and they are capable of integrating their knowledge and insights.

Students develop an academically inquisitive attitude while on the programme, along with thorough technical understanding, insight and experience in the integrated application of their expertise in a design process. Programme graduates are thus capable of working with advanced IT in an academically prudent, ethically sound and socially responsible way, and of contributing to the further development of the field of study. Furthermore, graduates are capable of pursuing a Master's programme to specialize in a particular type of IT system or aspect of the field and/or to gain further experience by conducting scientific research. The design-oriented programme activates and challenges students by focusing on the combination of expertise, quality, creativity and technological developments, thus preparing them for a future in which they continually work on their professional development and apply their expertise appropriately, effectively and with sound professional judgement.

The primary objective of the Bachelor's programme in Business & IT is admission to a Master's programme. A secondary objective is to qualify the graduate for independent professional practice at the Bachelor's level.

The objective of the Bachelor's programme is to train university students to design high-quality IT systems and their applications and to adjust them to the appropriate user context. To this end, programme graduates have:

1. insight into and experience with the application of models,
2. an academically inquisitive attitude,
3. thorough technical knowledge and understanding,
4. experience in the integrated application of their expertise in a design process:
    a. assessing the costs and benefits of potential solutions,
    b. implementing information systems in the relevant business contexts,
    c. the software development process (software engineering),
    d. developing web applications and other programmes,
    e. the interaction between people and technology.
5. the knowledge and skills to work with advanced IT in an academically prudent, ethically sound and socially responsible way,
6. the knowledge and skills to further the development of the field of study.

1.2 The final qualifications of the programme (Article 7.13, paragraph 2c of the Act)

The BIT programme's intended learning outcomes are shown in Table 1, grouped in six different domains.

Table 1. B-BIT Programme Intended Learning Outcomes (PILOs)

1 Business domain knowledge and skills
1.1 Understands theories of the process behind the production of goods and services and can apply this in designing solutions.
1.2 Understands models of costing and budgeting and their significance for the ability to manage business processes and can apply this in designing solutions.
1.3 Can analyse, design and/or redesign business processes that support business operations, making use of theories and models of business processes and methods for analysis and design.
2 Information Technology domain knowledge and skills
2.1 Understands the methods, techniques and tools for the development of software systems, and can apply them.
2.2 Understands theories, methods and techniques for the design of databases, as well as of relevant implementation and maintenance aspects.
2.3 Knows and understands how to design user interfaces, focusing on the interactions between the end-users and the system.
3. Business-IT alignment knowledge and skills
3.1 Can systematically integrate requirements and practices from business and IT in specified application areas using theories and models of organization and IT.
3.2 Understands theories of the role of information technology in business operations and innovation.
3.3 Can analyse, design and/or redesign the information systems that support business operations using the design cycle (see 4.1).
3.4 Understands the management aspects, quality and risk management of the software development process and software products.
4 Scientific approach
4.1 Can under supervision systematically apply the design cycle (analysis, design, implementation, evaluation and reflection) to IT and business problems, applying theories from different disciplines if necessary.
4.2 Can under supervision systematically design and execute a research plan (literature research, problem analysis, formulating hypothesis, design and execution research plan, data analysis, report, conclude) crossing different disciplines or fields if necessary
4.3 Has basic knowledge of and is able to apply research methodology and research ethics, both in the area of social science research as in design research.
4.4 Can apply creative and critical thinking, reflection and argumentation.
4.5 Is capable of independently acquiring new knowledge and skills from different disciplines.
4.6 Can apply specific mathematical theories and analyse problems and solutions conceptually.
5 Professional skills
5.1 Can cooperate, discuss and report in written and verbal ways, in English, in both a professional and a research setting, and is aware of the differences between these settings.
5.2 Is capable of working as part of a (multi-disciplinary) team in different roles, as member or leader, in terms of sharing responsibilities, applying time management, and planning resources and reporting, and is aware of group dynamics in development projects.
5.3 Is capable of functioning as a professional in and between different disciplines/fields.
5.4 Is capable of setting up and leading a (simple) enterprise.
5.5 is capable of shaping his/her learning process, his/her competencies and develop his/her professional identity, by deliberately choosing, motivating and completing study units that match personal capacities, skills, and motives.
6. Taking account of Social and Temporal context
6.1 Is capable of analysing and discussing ethical, social, cultural and societal aspects of problems, solutions and developments and their consequences in the field.
6.2 Can value differences between cultures and can learn from these.

1.3 Content of the programme and related examinations (Article 7.13, paragraph 2a of the Act)

1.3.1 The Curriculum (Art 4.4 lid 1, Guideline TER)

Table 2 shows which teaching units (modules) make up the curriculum, the module components comprising them where applicable, their weight expressed in credits, the language of instruction and assessment, required or preferred prior knowledge and the sequence of these modules throughout the programme. The associated learning goals are included in Annex 1.

1.3.2 The minor profile

1. The minor profile consists of two minor modules;
2. Approved minors are listed on the minors site: www.utwente.nl/minor;
3. The minor profile is limited to no more than one in-depth minor. See Table 3;
4. Students opting for a free-choice minor must first obtain permission from the Examination Board:
5. The Examination Board uses the following guidelines to assess the student's request:
    a. The educational component of the minor must be at an academic level;
    b. At least 15 of the 30 credits must involve a paradigm shift;
        i. The contents of the minor must not fall within the field of computer science; or
        ii. The contents of an exchange minor may fall within the field of computer science, business administration or industrial engineering and management, provided that the minor is taken at an institute of higher education abroad and the educational component of the minor is at an academic level.
    c. The educational component of the minor may not overlap with the programme's compulsory units of study;
    d. Up to five credits may be devoted to courses on the language and culture of the host country.

See www.utwente.nl/bit for further information regarding the Examination Board's procedure for approving the minor. Once approval has been granted, the Bureau of Educational Affairs (BOZ) is responsible for the administrative procedure involved in enrolling the student in the relevant minor.

1.3.3 Sequence requirements (Article 7.13, paragraph 2s of the Act)

1. A student may enrol in the minor through the Minor Bureau once he/she has earned at least 75 credits, including all first-year components;
2. A student may only enrol in the final semester modules BIT INC (201500119) and Research Project (201500120) once he/she has earned at least 120 credits, excluding minors;

1.4 Programme format (Article 7.13, paragraph 2i of the Act)

The programme is only offered on a full-time basis.

Table 2. B-BIT curriculum

Course code / Module part	Course name / Name Module part	Assessment	EC	Language	Quartile	Prerequisites*
B1-fase (Year 1)						
201700149	Introduction to BIT		15	EN	1A	
I	Introduction to mathematics + calculus 1A	Written tests; case	4			
II	Introduction to BIT	Written tests; MCV tests; assignments; case; products; reports; presentations	11			
201700117	Software Systems		15	EN	1B	Desirable: Introduction to BIT
I	Calculus 1B	Written tests; case	3			
II	Software Systems	Written tests; assignments; products; reports	12			
201300107	Business Intelligence & IT		15	EN	2A	Desirable: Introduction to BIT
I	Linear Algebra	Written tests; case	3			
II	Business Intelligence & IT	Written tests; MCV tests; assignments; product; report; presentations	12			
201700279	Data & Information		15	EN	2B	Desirable: Introduction to BIT + Software Systems
I	Probability Theory	Written tests; case	3			
II	Data & Information	Written tests; assignments; product; report; presentations	12			

*Desirable: some prior module-specific knowledge is advised, although this is not a prerequisite. Required: prerequisite must be met prior to starting the module.

Continuation Table 2. B-BIT curriculum

Course code / Module part	Course name / Name Module part	Assessment	EC	Language	Quartile	Prerequisites*
B2-fase (Year 2)						
201400301	Finance for Engineers	Written tests; MCV tests; assignments; product; report; presentation	15	EN	1A	
201700269	Intelligent Interaction Design	Written test; MCV tests; lab-test; assignments; product; report; presentation	15	EN	1B	Desirable: Software Systems + Data & Information
201400467	From Product Design to Online Business	MCV tests; product; report; presentation	15	EN	2A	Desirable: all preceding modules
201500310	Business Innovation through IT Project Management	Written tests; product; report; presentation	15	EN	2B	
B3-fase (Year 3)						
xxxxxxxxx	Minor		15		1A	Requirement for minor module: 75 credits upon registration in Osiris, including al first-year components
xxxxxxxxx	Minor		15		1B	Requirement for minor module: 75 credits upon registration in Osiris, including all first-year components
201500119	BIT INC.	Product; report; presentation	15	EN	1A of 2A	Required: 120 credits (excluding minor) upon registration in Osiris
201500120	Research Project	Assignments; presentation	15	EN	1B of 2B	Required: 120 credits (excluding minor) upon registration in Osiris

* Desirable: some prior module-specific knowledge is advised, although this is not a prerequisite. Required: prerequisite must be met prior to starting the module.

Table 3. In-depth minor modules

Course code / Module part	Course name / Name Module part	Assessment	EC	Language	Quartile	Prerequisites*
201500066	Serious Gaming	Product; report; game.	15	EN	1A	
201600005	Smart Cities: multifunctional flood defences	Product; report	15	EN	1A	
201500057	Smart Spaces	Written tests; challenges; product; report; presentations	15	EN	1A	Desirable: Software Systems
201800074**	Study Tour	Report(s), presentations	15	EN	1A	
201500025	Web Science	Written tests, reports, presentations	15	EN	1B	Desirable: Software Systems
201700014	High Tech Talent Management in a Global Context		15	EN	1B	
I	IT Support for Talent Management	Individual assessment	*9*			
II	Design of IT-enabled Talent Management Tool	Project	*6*			
201500053	Cyber-Physical Systems	Written tests; reports; assignments; product; presentations	15	EN	1B	Desirable: Software Systems
201400537	Programming Paradigms	Written tests; product; report; presentations	15	EN	2B	Desirable: Software Systems

* Desirable: some prior module-specific knowledge is advised, although this is not a prerequisite. Required: prerequisite must be met prior to starting the module.
** Study Tour is not offered every year and subject to selection.

2. LANGUAGE OF TUITION (Article 3.3, paragraph 1 of the Teaching and Examination Regulations)

The programme is taught in English as of the 2016 cohort (and later cohorts), and in Dutch for the 2015 cohort (and earlier cohorts).

3. TEACHING AND ASSESSMENT

3.1 Assessment and examination formats (Article 7.13, paragraph 2l of the Act)

Annex 1 details the examination format for each unit of study.

3.2 Registration of results

In addition to Article 4.1, Guideline TER:

1. Exemptions for examinations are indicated with the code 'VR'.
2. Exemptions are assigned a numerical value of 6.
3. The examination results of sufficient (V) and insufficient (NVD) have no numerical values.

3.3 Participation in tests (Art. 4.3(3), TER Guideline)

1. If attendance in designated educational activities is a prerequisite for participation in a test, then the module coordinator must decide on granting exemptions to students resitting the test or must define an alternative method to satisfy the attendance requirement.
2. If a module has been changed and the non-divisible component is no longer clearly identifiable, then the module coordinator must decide which tests must be passed in order to complete the former non-divisible component.
3. A substantiated request must be submitted to the Examination Board if a student wishes to participate in sessions that are not part of the regular module.

3.4 Third attempt

If a student requires more than two consecutive academic years to pass a module, then the student must agree on a study plan together with the Study Advisor at least two weeks prior to the start of the relevant module. The study plan must include at least agreements on time keeping and active participation in tutorials.

3.5 Examination transparency

In addition to Article 4.4 (Guideline TER), the programme is to ensure that information is made available for each examination regarding its level, structure and marking norms, e.g. by providing a sample examination, an examination from a previous year or a collection of sample examination questions.

3.6 Period of validity (Art. 4.7(2) Guideline TER)

The module components are indicated by a Roman numeral in the module descriptions in Table 2. The results of these module components remain valid indefinitely. A module component only becomes indefinitely valid if the student has received a 5.5 or higher grade in all tests of this particular component. Test results of an indefinitely valid module component may be used in the next academic year for compensation (e.g., for a grade 5.0 to 5.5), as prescribed in the module grading schema.

3.7 Confidentiality

In addition to Article 4.9(2) (Guideline TER):

1. Reports of final assignments are public documents except in the following cases.
2. The Programme Board may deem a report to be confidential for a specific period based on a detailed request:
    a. The first supervisor must submit a request to the Programme Board prior to the start of the final assignment.
    b. The confidential report must be accessible/available to the committee responsible for assessing the final assignment, the Programme Board, and representatives of bodies that have a statutory duty of overseeing the quality of the assessment or the programme as a whole.
    c. The parties mentioned above are required to observe confidentiality with regard to the report.
3. In the case of a confidential report as referred to in point 2, the public presentation of the report may be amended to ensure that no confidential information is made public.

3.8 Teaching evaluations (Art. 4.10(3) Guideline TER)

1. The online Student Experience Questionnaire (SEQ) is used for evaluation purposes at the conclusion of each module;
2. Additionally, the module coordinator may initiate supplementary evaluations, such as additional surveys and panel discussions during the module or at its conclusion;
3. If the SEQ results and/or student complaints give reason for concern, then the programme director is to discuss the matter with the module coordinator either during the module or at its conclusion;
4. The programme director and module coordinator are to use this discussion to develop a plan for improving the remainder of the module or for the subsequent module, including a strategy for evaluating the improvements.

4. FINAL DEGREE AUDIT

4.1 Pass/Fail Regulation

1. Students who meet the following requirements will pass the Bachelor's final degree audit for the BIT programme:
    a. The student has received an assessment for all units of study of the Bachelor's final degree audit;
    b. The student's final results are 6 or higher for all units of study;

    In all other cases not specified under (1), the student will not pass the final degree audit and will not receive a Bachelor's degree.

4.2 Cum Laude

1. A student may pass the Bachelor's final degree audit with distinction (cum laude) upon meeting the following requirements:
    a. The student passes the Bachelor's final degree audit within four years of initial enrolment (performance requirement);
    b. The student's average mark is 8.0 or higher (non-numeric assessments and exemptions not included). This is a weighted average based on the relative number of credits per unit of study. The results for minor modules are taken into account. Results for study units outside the examination programme are not taken into account.
    c. No more than one unit of study may have a final result of 6.
    d. The mark for the module part Research Project of the module Research Project (201500120) is 8.0 or higher.
2. In exceptional cases and at the student's request, the Examination Board may award the distinction of cum laude if the student has met all requirements with the exception of the performance requirement, due to extenuating circumstances. These circumstances may involve delays recognized and provided for by the institution. It should be noted that the distinction of cum laude is never awarded automatically, but only following individual assessment of the student's academic achievements.

5. BINDING RECOMMENDATION (BSA)

A student will receive a positive BSA upon satisfying one of the following conditions (Article 6.3, Guideline TER):

1. Successful completion of three complete modules;
2. Successful completion of 45 credits of module components, including at least three mathematics modules (Math A+B1, Math B2, Math C1, Probability Theory);
3. In addition to the stipulations in (2), a module component has been successfully completed if it is part of a fully completed module, or if the test results of the completed module component is a 5.5 or higher in the case of a module that has not yet been completed.

6. ADMISSION

6.1 Admission Requirements

Access to the Business & IT programme can be obtained by fulfilling the following requirements:

1. With a diploma of the concluding examination of University Preparatory Education (VWO) or equivalent. The Business & IT programme considers the following certificates to be equivalent:
    a. Certificate of the propaedeutic examination of an Academic Programme (WO) in an engineering field;
    b. Certificate of the propaedeutic examination of a Higher Vocational Programme (HBO) in an engineering field with a CGPA of 7.5 on a 10-point scale or higher;
    c. Certificate of the concluding examination of an Academic Programme in an engineering field;
    d. Certificate of the concluding examination of a Higher Vocational Programme in an engineering field;
    e. Certificate that has been approved by the Minister and that is at least equal to the diploma of the concluding examination of University Preparatory Education - the diploma may have been issued in the Netherlands or abroad;
    f. Certificate that has been approved by the Executive Board and that is at least equal to the diploma of the concluding examination of University Preparatory according to the judgement of the Executive Board - the diploma may have been issued in the Netherlands or abroad;
2. Mathematics B at University Preparatory Education level or equivalent;
3. English level:
    a. a secondary school diploma including English as an examination subject from a country that has ratified the Lisbon Treaty; or
    b. CEFR, B2/C1 level; or
    c. IELTS score of 6.0 or higher; or
    d. TOEFL score of 80 or higher.

6.2 Admission to a Master's programme

A student with a Bachelor's degree in Business & IT gains direct admission to the following Master's programmes at the University of Twente:

- Business Information Technology
- Computer Science*

*Additional requirements apply for admission to this Master's programme for graduates of the University of Twente's Business & IT Bachelor's programme.

7. STUDY MATERIALS

Students who started on the programme in September 2013 or later must obtain a 'budget notebook' from the Notebook Service Centre (or acquire a similar or better device). A high-end notebook is recommended.