



## Curriculum

for the Master's  
degree programme

Applied Informatics

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# Curriculum for the Master's degree programme

## Applied Informatics

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## § 1 General Remarks

- (1) The Master's degree programme *Applied Informatics* is worth 120 ECTS credits. This corresponds to a scheduled study duration of 4 semesters. In accordance with § 54 Paragraph 1 of the Universities Act 2002 (hereafter: UA), the Master's degree programme *Applied Informatics* is assigned to the group of Engineering Sciences programmes.
- (2) The workload for the individual programme achievement is indicated in ECTS credits. The workload must amount to 1500 hours in one year, for which 60 credits are awarded. The workload is comprised of the element of independent study as well as the semester and contact hours (§ 51 para. 2 subpara. 26 UA).

## § 2 Qualification Profile

The qualification profile describes the scientific and professional qualifications that students gain by completing the degree programme.

At Klagenfurt University, the Informatics degree programmes (at Bachelor and Master level) focus on *Applied Informatics*. The programmes aim to qualify graduates for the top-quality development of computer-assisted solutions to problems, for the efficient and effective management of the problem-solving process, and for the design of the beneficial utilization of solutions, based on methods and techniques from Informatics (problem-solving competence). Above all, this requires sound knowledge and expertise in the field of Informatics, and a comprehensive understanding of economic interrelations, but it also demands extensive knowledge about possible fields of application. In Informatics, software systems are usually developed in organisations and embedded into social systems. Consequently, additional methodological, social and personal skills are necessary for the successful realisation, introduction, and beneficial utilization of Informatics systems.

The field of Informatics is characterised by highly dynamic development. The continuous improvement of methods and tools as well as the rapid succession of innovations in the areas of application represent significant challenges in terms of the qualification of graduates. Therefore, it must be a further aim of the degree programme to convey competencies to ensure that - on the one hand - graduates can actively contribute to this process of improvement and innovation, and that they are also able - on the other hand - to update their knowledge in an autonomous and timely manner. This requires not only detailed knowledge about the fundamental concepts, interrelations, and insights gained in the field, upon which the methods and tools are based, but also the reinforcement of individual competencies such as self-organisation and creative drive. A combination of research, teaching and practical application provides ideal conditions for developing these competencies.

Building on the fundamental principles acquired during the Bachelor's degree, graduates completing the Master's degree programme *Applied Informatics* at Klagenfurt University additionally gain extended specialized skills and expertise as well as a sound scientific education in at least one specialised area of Informatics (learning outcomes):

- *Specialized knowledge in Informatics and in areas of application:* In-depth *specialization subjects* in practical and theoretical Informatics serve to expand knowledge and expertise in the core area of Informatics. By choosing a specialization subject - characterised by a strong research orientation - the students are introduced

to the state of the art in terms of research and technology, and they are also adequately equipped for working in the chosen field in an independent scientific manner within the scope of their Master thesis. In this specialization subject students either gain further qualifications in one of the core areas of Informatics (*Information and System Security, Knowledge and Data Engineering, Software Engineering*) or in an area of application (*Business Information Systems, Distributed Multimedia Systems*). If necessary, students can complete courses in *supplementary subjects* to gain specific relevant knowledge not previously acquired.

- *Individual and leadership competencies*: Special courses prepare students not only for working scientifically, but also for managing software projects; they also learn to reflect their discipline Informatics, as well as their practical experiences. In view of the graduates' international occupational field and in order to strengthen their language skills, many courses in the Master's degree programme are taught in English; students are further encouraged to write their Master thesis in English. Gender knowledge and gender competencies can be acquired by attending courses in the elective subject *Feminist Science/Gender Studies* (§ 5 para. 3).
- *Practical or research experience and problem-solving competence*: Students have the opportunity to gain in-depth project experience by completing a project semester. Thus, they can gain intensive practical experience or impressions and experiences in the research projects, in which they are involved. In this way, graduates boost their skills for solving a wide range of problems in business or administration, or when addressing research questions in the academic sphere.
- *Working scientifically*: Students deliver their first scientific achievements in the shape of the Master project and the Master thesis, and are thus introduced to working scientifically. Graduates are qualified to pursue a doctoral degree.

In addition to the qualifications gained during the course of the Bachelor's degree, graduates of the Master's degree programme should also be able to manage complex software development projects, to define novel problem solutions, and to develop the concepts, methods, and tools of Informatics or one of the areas of application in a focused manner. They are experts in their specialist field with a comprehensive background in Informatics. They are distinguished by their high degree of independence and superior problem-solving skills. In particular, they are skilled at adapting to technical paradigm shifts. Furthermore, following three years of relevant professional activity and the successful completion of the Civil Engineer examination, graduates of the Master's degree programme are entitled to work as chartered civil engineers in the field of Informatics.

### § 3 Admission Requirements

- (1) The admission to the Master's degree programme *Applied Informatics* is conditional upon the successful completion of a relevant Bachelor's degree or a relevant Bachelor's degree at a University of Applied Sciences or other equivalent programme at a recognised domestic or foreign post-secondary educational institution (§ 64 para. 5 UA). The Bachelor's degree program *Applied Informatics* at Klagenfurt University qualifies as relevant in any case.

- (2) Students, who have completed a Bachelor's degree in Engineering Sciences or a comparable degree at another university, at a University of Applied Sciences, or at recognised post-secondary educational institution, either domestic or abroad, shall be admitted to the Master's degree programme, if they can provide evidence of knowledge in the core Informatics subjects equivalent to at least 90 ECTS credits. Core Informatics subjects include, for instance, the required subjects *Fundamental Principles of Applied Informatics*, *Fundamental Principles of Software Development* and *Fundamental Technical Principles and System Software* in the Bachelor's degree programme *Applied Informatics* at Klagenfurt University, as well as subjects such as *Theoretical Informatics*, *Software Engineering*, *Data Bases and Information Systems*, *Artificial Intelligence*, *Machine Vision*, *Language Processing*, *Pattern Recognition*, *Multimedia Systems*, *Computer Architecture*, *Computer Networks*, *Embedded Systems*, *Information and System Security* or *Human-Machine-Interaction*.
- (3) In the event that the student fulfils neither the prerequisites listed under §1 nor those listed under §2, and only certain supplementary qualifications are required for full equivalence, the Rectorate shall be entitled to tie the determination of equivalence to examinations sat during the respective Master's degree program (§ 64 para. 5 UA).
- (4) Students admitted to the degree programme belong to one of three categories:
- (i) These students are graduates of the Bachelor's degree programme *Applied Informatics* at Klagenfurt University, who continue the specialization subject chosen during the Bachelor's degree without interruption by selecting a relevant specialization subject in the Master's degree programme (§ 9, para. 2). These students are entitled to select any of the study options I to III in accordance with § 5.
  - (ii) These students are graduates of the Bachelor's degree programme *Applied Informatics* at Klagenfurt University, who continue the specialization subject chosen during the Bachelor's degree by selecting a different specialization subject (i.e. not immediately relevant) in the Master's degree programme (§ 9, para. 2), as well as graduates from a relevant Bachelor's degree at another domestic or foreign university, or other recognised post-secondary educational institution in line with para. 2, who have not completed at least 12 ECTS credits worth of courses relevant to the specialization subjects in the Master's degree programme (§ 10 para. 2). These students can select either study option II or III, in accordance with § 5.
  - (iii) These students are graduates of a relevant Bachelor's degree at a University of Applied Sciences pursuant to para. 1, or graduates of another domestic or foreign university or other recognised post-secondary educational institution acc. to para. 2, who have completed a relevant practical placement during the course of their Bachelor's degree programme, or persons who commenced the Master's degree programme after completing a minimum of four months of full-time, relevant professional activity. These students must complete study option III, in accordance with § 5.
- (5) Following admission to the degree programme, the Programme Director shall determine the categorization acc. to para. 4 and the supplementary subject (§ 10), if required.

## § 4 Academic Degree

Graduates of this Master’s degree program are awarded the academic degree “Diplom-Ingenieurin/Diplom-Ingenieur” (abbreviated to “Dipl.-Ing.” or “DI” and equivalent to “Master of Engineering”). When used, the academic degree must precede the name.

## § 5 Structure and Organisation of the Degree Programme

- (1) Students must complete the required subjects, the specialization subject (elective) and the options within the scope of the Master’s degree programme *Applied Informatics*. Three study options have been defined with regard to completing the practical placement (hereafter: project semester) and/or a supplementary subject. Based on the categorization in line with § 3 para. 4, the study option is either pre-determined, or a matter of student choice:
- Study option I: full project semester (incl. review/appraisal)
  - Study option II: shortened project semester (incl. review/appraisal) and reduced supplementary subject
  - Study option III: full supplementary subject.

Students must also complete a Master thesis (incl. Privatissimum research seminar). Table 1 below depicts the structure of the Master’s degree programme.

Table 1. Structure of the Master’s degree programme Applied Informatics

<i>Type of subject</i>	<i>Designation</i>	<i>ECTS credits</i>	
<b>Required subject</b>	Specialization in Informatics	12	28
	Consolidation of Competencies	16	
<b>Elective (Choice of <u>one</u> specialization subject)</b>	Business Information Systems		28
	Distributed Multimedia Systems		
	Information and System Security		
	Knowledge and Data Engineering		
	Software Engineering		
<b>Options</b>	Options	6	
<b>Practical placement and/or supplementary subject</b>	<i>Study option I:</i> full project semester (incl. review/appraisal)	28	28
	or		
	<i>Study option II:</i> shortened project semester (incl. review/appraisal) and reduced supplementary subject	16  12	
	or		
	<i>Study option III:</i> full supplementary subject	28	

<b>Master thesis</b>	Master thesis (incl. Privatissimum research seminar)	30
<b>Comprehensive examination</b>	Oral comprehensive examination by committee	
		<b>Total: 120</b>

- (2) Refer to § 14 regarding the project semester, and to § 10 regarding the configuration of the supplementary subject. The supplementary subject primarily serves to prepare students in terms of content for the respective chosen specialization subject (§§ 9 und 10).
- (3) In study option II, courses amounting to 12 ECTS credits from the elective subject *Feminist Science/Gender Studies*, ideally selected from the *Technology* module, can be substituted for the reduced supplementary subject. In study option III they can be integrated into the full supplementary subject. However, in both cases, § 10 para. 2 must be observed.

## § 6 Studying Abroad/Mobility

It is principally recommended that students spend at least one semester abroad. This can be conducted as a project semester (study options I or II according to § 5) at an institution abroad or/and as a period of study at a foreign university. In accordance with § 78 Para. 1 UA and provided that the equivalence can be established, examinations successfully completed at foreign universities can be recognised in the place of examinations prescribed by the curriculum. Students are specifically alerted to the possibility of the formal recognition of courses completed at the foreign university within the scope of the supplementary subject (study options II or III in accordance with § 5. Para. 10 subpara. 2 must be observed in any case. It is further recommended that students obtain a “pre-notification of approval” from the Programme Director in advance of the period abroad in accordance with § 78 Para. 5 UA.

## § 7 Types of Courses

- (1) Lectures (German abbrev. VO) are courses in which the instructors convey knowledge by lecturing. The course is concluded with a single (written and/or oral) examination.
- (2) Courses with an immanent examination character are courses in which the assessment is not based on a single examination, but rather is based on the written and/or oral contributions of the participants during the course or - in the case of scientific papers or projects (seminar papers or assignments requiring an equivalent effort) - no later than the end of the semester following the semester in which the course is held. The following are courses with an immanent examination character:
  - a) Course (German abbrev. KU): These are courses in which students and instructors work together on the subject matter in an experience-based and application-oriented way. In particular, courses serve to convey and expand skills required to solve specific problems.

- b) Lecture with course (German abbrev. VK): Courses of this type are comprised of a lecture part and a course part, which have close didactic links and are assessed jointly.
- c) Exercise (German abbrev. UE): Exercises serve to solve concrete tasks in order to reinforce the content of the lecture.
- d) Practical placement (German abbrev. PR): In addition to providing an academic education and qualification for professional activities, research and industrial placements serve to achieve the practical-professional objectives of the degree program. Special emphasis is placed on using the opportunity to work on concrete tasks and projects. A *project placement* is a practical placement, during which small research or development projects are carried out - preferably in teams - with due consideration of all required work stages. The completion of a written paper documenting the project progression and the project results are an inherent element of the placement
- e) Seminar (SE): Seminars serve the purpose of reflection and discussion of specific scientific problems and/or scientific papers. Participants make their own written and oral contributions. Seminar papers must be produced independently and must comply with good scientific practise in terms of form and content.
- f) Research Seminar / Privatissimum (German abbrev. PV): A Privatissimum is a specially designed research seminar, which serves to prepare students for the master thesis or which provides guidance throughout the process of writing the master thesis.

## § 8 Courses in Required Subjects

Compulsory subjects are subjects, which characterise the degree program, and which are concluded by an examination. They are listed in Table 2. The semester hours (sh) indicated are intended as a recommendation to assist with the planning and implementation of courses.

Table 2: Required subjects and assigned courses

<i>Required subject</i>	<i>Course designation</i>	<i>sh &amp; course type</i>	<i>ECTS credits</i>
Specialization in Informatics	Specialization in Practical Informatics by selection from (one 2VO and one 2UE): - Data Base Technology - Knowledge Engineering - Compiler Construction - Distributed Systems	2VO + 2UE	2 + 4



	Specialization in Theoretical Informatics by selection from (once 2VO and one 2UE): - Algorithms and Complexity Theory - Specification and Verification	2VO + 2UE	2 + 4
			<b>Total: 12</b>
Consolidation of Competencies	Running Software Projects	2VK	4
	System Development Process	2VK	4
	Scientific-theoretical Reflection of Informatics	2VK	4
	Scientific Writing	2SE	4
			<b>Total: 16</b>

Students are advised to schedule the courses pertaining to the subject *Specialization in Informatics* at the beginning of the Master's degree programme, and to complete the course "Running Software Projects" before the project semester, and the course "System Development process" after the project semester.

## § 9 Courses in the Subjects of the Electives

- (1) Electives are those subjects, in which students can select from the subjects listed in the curriculum or from the lists of subjects provided. Students must complete electives worth a total of 28 ECTS credits.
- (2) The electives serve the acquisition of in-depth specialised expertise in the knowledge, methods and skills in the selected area, and are therefore comprehended and defined as specialization subjects. Students must select one of the specialization subjects. The specialization subjects offered during the Master's degree programme follow on from the specialization subjects taught in the Bachelor's degree programme *Applied Informatics*, as described in Table 3. In the case that a preparatory specialization subject in line with Table 3 has been completed in the Bachelor's degree programme *Applied Informatics*, the student can commence attending the continuing specialization subject of the Master's degree programme directly, i.e. without the need for supplementary courses.

Table 3: Specialization subjects in the Master's and Bachelor's degree programme *Applied Informatics*

<i>Continuing specialization subject in the Master's degree programme</i>	<i>Preparatory specialization subject(s) in the Bachelor's degree programme</i>
Business Information Systems	Natural Language Processing Software Development Business Informatics
Distributed Multimedia Systems	Human-Centered Computing Media Informatics
Information and System Security	<i>All Bachelor specialization subjects</i>

Knowledge and Data Engineering	Natural Language Processing Software Development Business Informatics
Software Engineering	Human-Centered Computing Software Development

- (3) Students must complete the following type and scope of courses in the chosen specialization subject: six combined courses (2VK / 4 ECTS credits each) and one seminar (2SE / 4 ECTS credits).
- (4) The course catalogues for the specialization subjects are provided in Appendix D; the courses listed in these catalogues are offered in any case.

### § 10 Supplementary Subject

- (1) Depending on the categorization of the student in line with § 3 para. 4, either a full or a reduced form of the supplementary subject must be completed (study options II or III as stipulated in § 5). Students are required, in principle, to complete supplementary courses from the range of courses available in the engineering and technical degree programmes at Klagenfurt University, or, in substitution, from the elective study programme *Feminist Science / Gender Studies*, ideally from the *Technology* module (§ 5 para. 3). Para 2. applies in any case. The courses must be agreed in advance with the Programme Director.
- (2) In the case of students from the groups (ii) and (iii), as defined by § 3 para. 4, there is no preparatory specialization subject from the Bachelor's degree programme *Applied Informatics* in accordance with § 9 para. 2. Consequently, within the scope of the supplementary subject, these students must complete the supplementary courses listed in Table 4, namely the courses of the Bachelor's degree programme *Applied Informatics*, with a value of at least 12 ECTS credits, before they complete the courses of the chosen specialization subject in the Master's degree programme. Any form of double recognition using ECTS credits gained in the required subject *Specialization in Informatics* (§ 8) is not permissible.

Table 4: Supplementary courses for specialization subjects in the Master's degree programme

Specialization subject in the Master's degree programme	Supplementary courses (Supplementary subject)
Business Information Systems	Data Base Technology (2VO+2UE / 2+4 ECTS-AP)
	Business Informatics (2VO+2UE / 2+4 ECTS-AP)
Distributed Multimedia Systems	Introduction to Multimedia Technology (2VO+2UE / 2+4 ECTS-AP)
	Distributed Systems (2VO+2UE / 2+4 ECTS-AP)
Information and System Security	System Security (2VO+2UE / 2+4 ECTS-AP) <sup>1</sup>

<sup>1</sup> These courses are not compulsory for graduates of the Bachelor's degree programme *Applied Informatics* at Klagenfurt University, but they are strongly recommended.

	Algebraic Structures (3VO+1UE / 4+2 ECTS-AP) <sup>1</sup>
Knowledge and Data Engineering	Data Base Technology (2VO+2UE / 2+4 ECTS-AP)
	Knowledge Engineering (2VO+2UE / 2+4 ECTS-AP)
Software Engineering	Specification & Verification (2VO+2UE / 2+4 ECTS-AP)
	Methodological Principles of HCC (2VK / 3 ECTS-AP)
	Interactive Systems II (2VK / 3 ECTS-AP)

- (3) In the case that individual supplementary courses as described in Table 4 have already been completed and recognised in the Bachelor's degree programme, there are two options:
- (i) The supplementary subject worth a total of 12 ECTS credits must be completed by attending other courses from a preparatory specialization subject from the Bachelor's degree programme *Applied Informatics* (Table 3).
  - (ii) The missing supplementary courses are completed within the scope of the required subject *Specialization in Informatics* (§ 8). Thus, it is possible that the reduced supplementary subject can be dispensed with, which opens up the possibility of study option I, in line with § 5.

Both options must be approved by the Programme Director.

## § 11 Options

The term options describes those subjects, which students can select freely from the range of courses offered by domestic and foreign universities. Courses completed in order to gain the entitlement to study at a university, or the general or special university entrance qualification, are excluded. Students must complete options worth 6 ECTS credits.

## § 12 Courses with Limited Numbers of Participants

- (1) All courses endowed with an immanent examination character are limited to a total number of persons not exceeding 30 participants.
- (2) If the number of students registering for these courses exceeds the number of available places, students are admitted in accordance with the following procedure:
  - All possible participants are ranked according to points awarded. All examination results obtained in courses in the Master's degree program are taken into consideration. In the case of courses, which are open to students both from the Bachelor's and the Master's degree program, the required subjects completed by Master's students during their Bachelor's degree also enter into the calculation.
  - The formula for points achieved in a course is:  $(5 - \text{examination grade}) \times \text{„number of ECTS credits in this course“}$ .
  - These points are added together. Students with a higher number of points are given preference. In the case of a tie, the decision is made by the drawing of lots.
- (3) Pursuant to § 54 para. 8 UA, due care must be taken to ensure that any student not admitted to a course due to limited places does not have to face a delay in the

overall study duration. If required, parallel courses shall be offered, providing there are sufficient financial means.

### **§ 13 Master Thesis**

- (1) The term *Master thesis* refers to the academic paper, which serves to demonstrate the students' ability to achieve adequate standards of content and methodology when independently addressing scholarly topics. The assignment for the master thesis shall be chosen in such a way that it is feasible and reasonable to expect students to complete the work within six months. Students are encouraged to write the Master thesis in English, with the supervisor's prior permission.
- (2) The topic of the *Master thesis* must be selected from the required subject *Specialization in Informatics* (§ 8) or the specialization subject selected in accordance with § 9.
- (3) The *Master thesis* is worth 28 ECTS credits. Students must complete the *Privatissimum* research seminar (2PV / 2 ECTS credits) of their supervisor, which accompanies the *Master thesis*.
- (4) In accordance with Part B § 18 of the University Statutes, the student must provide the Rector for Academic Affairs with written notice of the topic and the name of the supervisor of the master thesis prior to commencing work on the thesis. The topic and the supervisor are deemed to have been accepted, if the Rector for Academic Affairs does not issue a notice of prohibition within one month after receipt of the student's notice. A change of supervisor is admissible up to the submission of the master thesis
- (5) The completed master thesis shall be submitted to the Rector for Academic Affairs in printed and in electronically readable form for the purpose of assessment. More specific instructions in this regard are decreed by the Rector of Studies with due consideration of the state of technological development. The supervisor shall assess the master thesis within two months from the time of submission.

### **§ 14 Practical Placement (Project Semester)**

- (1) As stipulated in § 3 para. 4 and §§ 5, 9 and 10, a subject-relevant practical placement, referred to as *project semester* hereafter, can be completed, allowing students to practise, apply, and expand their acquired knowledge and skills.
- (2) The project semester is a managed practical project placement, which is supervised by a university lecturer, during which students work on a complete project, which is defined in advance. This applies, particularly, to working students. Students can suggest the subject area or the problem definition for the project semester from the scope of the specialization subjects (§ 9), and they can propose institutions. They can also make a selection from a pool of suggestions. Students must gain the supervisor's approval prior to commencing the project semester. If necessary due to geographical distance, the supervision is conducted by technical communication and cooperation methods, to ensure that the teaching goals of the project semester can be reached.
- (3) Upon conclusion of the project semester, usually during the following semester,

students must review the project semester in a joint course „Cross-Project Review“ (! VK / 1 ECTS credit), as well as completing a written report, which serves to document the content, results, and experiences. The project semester is assessed by the supervising university lecturer based on this report and a detailed conversation. A positive assessment is defined as “participated with success”, a negative assessment is defined as “participated without success”. The course “Cross-Project Review” is assessed separately.

- (4) The project semester can be conducted as one of three options:
- (i) As full project semester („practical semester“) for the duration of one semester, which means that it must last at least 16 weeks, with a domestic or foreign company, a public administration body, a non-profit organisation or a non-university research institution. A „practical semester“ introduces students to application-oriented problems and to the working methods of daily business or of non-university institutions. A full „practical semester“ is worth 27 ECTS credits; students must also complete the “Cross-Project Review” worth 1 ECTS credit.
  - (ii) As full project semester („research semester“) for the duration of one semester, which means that it must last at least 16 weeks, with one of the Informatics Research Groups at Klagenfurt University. A „research semester“ introduces students to the methods and reality of scientific working through their concrete participation in the research efforts of the Informatics Research Groups at Klagenfurt University. A full “research semester” is worth 27 ECTS credits; students must also complete the “Cross-Project Review” worth 1 ECTS credit.
  - (iii) As shortened project semester (as practical placement or in research) for the duration of half a semester, which means that it must last at least 9 weeks, supplemented by courses from the range of courses offered by the technical and engineering degree programmes, as chosen by the student (reduced supplementary subject, SS 5 and 10). Students are encouraged to primarily select courses aimed at expanding and consolidating practical expertise and skills; § 10 para. 2 applies in any case. A shortened project semester is worth 15 ECTS credits; students must also complete the “Cross-Project Review” worth 1 ECTS credit.

## **§ 15 Use of Languages other than German**

If required, courses and examinations shall be conducted in English. The Master thesis can be written in English.

## **§ 16 Examination Regulations**

- (1) Course examinations for lecture courses (VO) are conducted - preferably in writing - at the end of or after the course in a single examination act and comprise the content covered in the course. They serve to establish the successful participation in the course and provide proof that the student has mastered the knowledge,

methods and skills conveyed in the lecture. The educational objectives defined in the qualification profile, in particular, shall serve as standard.

- (2) All other types of courses are endowed with an immanent examination character; attendance is mandatory. Exercises (UE) and practical placements (PR) are assessed on the basis of continuous monitoring as well as written and oral examinations, and the success of practical activities. The students' written and oral contributions in seminars (SE) and in the Privatissimum research seminar (PV) (particularly seminar papers, seminar presentations, and the participation in discussions) serve as a basis for the assessment. Lectures with courses (VK) define the examination mode in line with the character of the course of the educational objectives.
- (3) The respective examination and assessment modalities for courses must be announced by the course instructor at the beginning of the course.
- (4) Examinations, which counted towards the successful completion of the degree programme that served as prerequisite for the admission to the Master's degree programme, cannot be counted a second time towards the conclusion of the Master's degree programme.
- (5) The Master's degree programme *Applied Informatics* is concluded with the Master examination, which is comprised of the following parts:
  - a) course examinations covering the courses assigned to the required subjects, the specialization subjects, and the options (§§ 8, 9 and 11);
  - b) the successful completion of the practical placement (project semester incl. review/appraisal) and/or, if required, of the supplementary subject or *Gender Studies* (§§ 5, 10 and 14);
  - c) the positive assessment of the Master thesis;
  - d) the final oral comprehensive examination by committee.
- (6) Permission to take the final oral comprehensive examination by committee is conditional upon the completion of the parts of the Master examination listed in para. 5 lit. a) - c).

The oral comprehensive examination by committee is conducted by an examination board comprised of three persons and includes:

- a) the presentation and defence of the Master thesis;
  - b) the chosen specialization subject (§ 9);
  - c) a further subject (unconnected in terms of content to lit. b)) from the scope of the required subject *Specialization in Informatics* (§ 8), the chosen specialization subject (§ 9) or, if required, the supplementary subject (§§ 10).
- (7) A subject grade is calculated for each of the subjects acc. to §§ 8, 9 and 11, and the supplementary subject (§ 10), if required. The subject grade represents the arithmetic average of the individual courses in the respective subject, each weighted with the respective ECTS credits. In compliance with the usual mathematical rounding rules, the result is rounded to a full grade; if the result is „x.5“, the grade is rounded up to the better full grade („x“)(in the spirit of § 12

para. 8 Part B University Charter). In addition to the assessment for each individual subject in accordance with §§ 8, 9 and 11, and § 10, if required, an overall assessment as stipulated in § 73 para. 3 UA shall also be performed.

- (8) The implementation and repetition of examinations is governed by the provisions stipulated in Part B of the University Charter of Klagenfurt University and by the Universities Act, as amended.

#### **§ 17 Effective Validity**

- (1) This curriculum comes into force on the 1<sup>st</sup> of October 2013 following formal announcement in the University Bulletin of Klagenfurt University, and applies to all students who commence their Master's degree program from winter semester 2013/14 onwards.

#### **§ 18 Transitional Provisions**

- (1) Students, who commenced their Master's degree programme prior to the winter semester 2013/14 are entitled to complete their studies in accordance with the applicable provisions in place within the timeframe of the scheduled programme duration plus one additional semester, which means that they must conclude their studies no later than the 30<sup>th</sup> April 2016. If the degree programme is not completed on time, the student has to pursue her/his studies according to the provisions of the new curriculum. Furthermore, students are entitled to voluntarily transition to the provisions of the new curriculum at any point in time.
- (2) The specific provisions governing the equivalence of positively assessed examinations in relation to the previously applicable curriculum and the new curriculum are described in Appendices A to C (equivalence tables).

**APPENDIX A: Equivalence Table defining the recognition of required subjects (§ 8) with regard to the curriculum of the Master's degree programme *Applied Informatics* (2013) and the curriculum of the Master's degree programme *Informatics* (2009)**

<i>Required subjects</i>	<i>Course title in the curriculum of the Master's degree Applied Informatics (2013) [ECTS credits]</i>	<i>Course title in the curriculum of the Master's degree Informatics (structurally amended in 2009) [ECTS credits]</i>
<b>Specialization in Informatics</b>	Specialization ( <i>required subject</i> ) in Practical Informatics through the selection of: - Data Base Technology [6] - Knowledge Engineering [6] - Compiler Construction [6] - Distributed Systems [6]	Choice of <i>supplementary subjects</i> : - Data Base Technology [6] - Knowledge Engineering [6] - Compiler Construction [6] - Distributed Systems [6]
	Specialization ( <i>required subject</i> ) in Theoretical Informatics through the selection of: - Algorithms & Complexity Theory [6] - Specification and Verification [6]	Choice of <i>supplementary subjects</i> : - Algorithms & Complexity Theory [6] - Specification and Verification [6]
<b>Consolidation of Competencies</b>	Controlling of Software Projects [4]	<i>Recognition of 4 ECTS credits from supplementary subjects <u>not previously counted in the required subject</u> Specialization in Informatics.</i>
	System Development Process [4]	System Development Process [3]
	Scientific Writing [4]	Seminar in Informatics [4]
	Scientific-theoretical reflection of Informatics [4]	Scientific-theoretical reflection of Informatics [4]

**APPENDIX B: Equivalencies for the recognition of specialization subjects (§ 9) with regard to the curriculum of the Master's degree programme *Applied Informatics* (2013) and the curriculum of the Master's degree programme *Informatics* (2009)**

Combined courses (2VK) and seminars (2SE) in the specialization subjects of the Master's curriculum *Applied Informatics* (2013) and the specialization subjects of the Master's curriculum *Informatics* (2009), which may be offered as lecture courses with the same name (2VO), are considered mutually equivalent. The correspondencies of the specialization subjects in terms of formal recognition are listed in the following table.

<i>Designation of the specialization subject in the curriculum for the Master's degree programme Applied Informatics (2013)</i>	<i>Designation of the specialization subject in the curriculum for the Master's degree programme Informatics (structurally amended 2009)</i>
Business Information Systems	Application Engineering Computational Linguistics
Distributed Multimedia Systems	Computer and Network Architecture Distributed Systems
Information and System Security	Information and System Security



Knowledge and Data Engineering	Data and Knowledge Engineering Intelligent Information Systems in Production, Operation and Management
Software Engineering	Interactive Systems Software Engineering

**APPENDIX C: Equivalence Table defining the recognition of additional subjects (§§ 13 and 14) with regard to the Curriculum of the Master’s degree programme *Applied Informatics* (2013) and the Curriculum of the Master’s degree programme *Informatics* (2009)**

<i>Subject</i>	<i>Designation in the curriculum of the Master’s degree programme Applied Informatics (2013) [ECTS credits]</i>	<i>Designation in the curriculum of the Master’s degree programme Informatics (structurally amended 2009) [ECTS credits]</i>
<b>Practical Placement</b>	Project semester [27]	Practical application placement [24] <i>or</i> optional subject project [24]
	Cross-Project Review [1]	Cross-Project Review [2]
<b>Master thesis</b>	Master thesis [28]	Master thesis [28]
	Privatissimum [2]	Privatissimum [4] ( <i>required course</i> )

**APPENDIX D: Course catalogues for the specialization subjects (§ 9) (each either 2VK or 2SE / 4 ECTS credits)**

**Specialization subject “Business Information Systems (BIS)”**

Current Topics in Business Information Systems  
Current Topics in Natural Language Processing  
Selected Topics in Business Information Systems Seminar in Business Information Systems Seminar in Natural Language Processing Business Technologies  
Topics in Knowledge and Data Engineering for Business Information Systems  
Topics in Information and System Security for Business Information Systems  
Fundamental Linguistic Principles of Search Engine Marketing

**Specialization subject “Distributed Multimedia Systems (DMS)”**

Fundamental Topics I in Distributed Multimedia Systems  
Fundamental Topics II in Distributed Multimedia Systems  
Current Topics in Distributed Multimedia Systems: Multimedia Information Retrieval Current Topics in Distributed Multimedia Systems: Interactive Multimedia  
Current Topics in Multimedia Communication: *Server, Cluster, and Cloud Computing*  
Current Topics in Multimedia Communication: *Adaptive Media Streaming*  
Selected Topics in Distributed Multimedia  
Systems Selected Topics in Multimedia  
Communication Seminar in Distributed Multimedia Systems Seminar in Multimedia Communication

### **Specialization subject “Knowledge and Data Engineering (KDE)”**

Interoperability  
Process  
Engineering  
Business  
Intelligence  
Semantic Web Technologies  
Information Search & Recommendation Systems  
Knowledge Representation and Reasoning for Games  
Current Topics in Information Systems Engineering  
Current Topics in Artificial Intelligence  
Selected Topics in Information Systems Engineering  
Selected Topics in Artificial Intelligence  
Seminar in Knowledge and Data Engineering

### **Specialization subject “Information and System Security (SysSec)”**

Applied Cryptology  
Basic Mechanisms of Cryptology Types  
of Security Infrastructure  
Selected Elements of System Security  
System Security Lab  
System Security Seminar  
Theory of Numbers  
Finite Fields and Coding Theory Mathematical  
Methods of Cryptology Symbolic Computation  
Seminar from Discrete Mathematics

### **Specialization subject “Software Engineering (SE)”**

Current Topics in Software Engineering: Software Evolution  
Current Topics in Software Engineering: Software Quality  
Selected Topics in Software Engineering  
Seminar in Software Engineering  
Current Topics in Interactive Systems: User Experience Engineering Current  
Topics in Interactive Systems: Mobile Interaction  
Selected Topics in Interactive Systems  
Seminar in Interactive Systems