

Joint agreement of co-operation for double degree

between:

Technische Universität Berlin

and

Ecole des Mines de Nantes

1. Preamble

Within the scope of this agreement, the term **Institution** describes the following entities, namely, **Technische Universität Berlin (hereafter referred to as TU Berlin)** and **Ecole des Mines de Nantes (hereafter referred to as EMNantes)**.

2. Subject of the agreement and aims

This agreement describes the academic and administrative conditions concerning the realization of a double degree program supporting the exchange of students between TU Berlin, School of Electrical Engineering and Computer Science, and EMNantes. The aim is to enable TUB students of Computer Science and EMNantes students to receive degrees from both institutions (Master of Science in Computer Science from TU Berlin and Diplôme d'Ingénieur of the EMNantes) under the conditions specified hereafter. This is based on the principle that the participating students have to fulfill the requirements of both study programs.

The program at TU Berlin is a research-oriented program. The coursework at EMNantes has an application-oriented focus.

2.1 Scope of agreement

This agreement applies to TUB students in the Master Program in Computer Science (CS) and EMNantes students in the computer science graduate programs "GIPAD" Computer Science for Decision Support, "GSI" Communication and Computation Systems Engineering, and "OMTI" Organization and Management of Information Technologies.

2.2 Acknowledgment of student's achievements on entering the dual degree program

On the assumption of fundamental equivalence and based on mutual trust in the academic quality of the host university's curriculum, it is agreed that

- EMNantes acknowledges the qualification for entrance to TUB CS Master Program.
- TUB acknowledges the qualification for entrance to EMNantes Graduate programs.

3. Program structure (Appendix 1)

3.1 For students of EMNantes

3.1.1 Program structure

The double degree program will follow the structure detailed below :

- 4 ½ years of higher education within the frame of engineering studies in France (Classes Préparatoires + EMNantes) including 3 semesters of study in the Graduate School of EMNantes

(Master 1 and Master 2) – option “GIPAD” Computer Science for Decision Support, option “GSI” Communication and Computation Systems Engineering, or “OMTI” Organization and Management of Information Technologies.

- A minimum of 2 academic semesters at TU Berlin in the frame of the Master of Science in Computer Science.
- Research-oriented final thesis project (Master’s thesis) co-supervised by TU Berlin and EMNantes and presented before a joint TU Berlin / EMNantes jury. The thesis will be carried out according to the requirements of TU Berlin.
- Students are required to submit a study plan for approval by both institutions prior to departure to the host institution.

Conditions of attribution of the double degree:

- Successful completion of 4 ½ years of higher education engineering studies in France (Classes Préparatoires + EMNantes)
- Acquisition of 90 ECTS course work credits in the Master’s program in Computer Science at TU Berlin, **part of which can be transferred from EMNantes.**
- Successful completion of the final thesis project (Master’s thesis) co-supervised and jointly evaluated by EMNantes and TU Berlin.

For the duration of the double degree program students will be jointly registered at TU Berlin and EMNantes.

3.1.2 Admission

Following an internal process of selection, students will be recommended to TU Berlin by the Board of Studies of EMNantes for admission to the Master of Science program in Computer Science at TU Berlin.

The selection process shall then go through an evaluation of the candidate’s application by TU Berlin, (with regard to academic level, language ability and the candidate’s motivation).

Students must demonstrate a good standard in English (TOEFL - a minimum of 80 internet-based test points, or equivalent) and in German (DSH level 2 or 3 or test DAF -16 points).

The final decision for admission is made by TU Berlin, subject to its rules and procedures.

Details of the application procedure are provided in a separate document (Appendix 2).

A maximum of 5 students may be admitted each year to TU Berlin from EMNantes.

3.2 For students of TU Berlin

3.2.1. Program structure.

The program structure is as follows.

- 3 years Bachelor of Science studies in Computer Science at TU Berlin.
- 3 semesters of study in the Graduate School of EMNantes (Master 1 and Master 2) – option “GIPAD” Computer Science for Decision Support, option “GSI” Communication and Computation Systems Engineering or option “OMTI” Organization and Management of Information Technologies.
- A minimum of 2 academic semesters at TU Berlin in the frame of the Master of Science in Computer Science.
- Research-oriented final thesis project (Master’s thesis) co-supervised by TU Berlin and EMNantes and presented before a joint TU Berlin / EMNantes jury. The thesis will be carried out in accordance with the requirements of TU Berlin
- Students are required to submit a study plan for approval by both institutions prior to departure to the host institution.

Conditions of attribution of the double diploma:

- Successful completion of 3 semesters of course work (100 ECTS) in the Graduate School of EMNantes (M1 and M2).
- Acquisition of 90 ECTS course work credits in the Computer Science Master's program at TU Berlin, **part of which can be transferred from EMNantes.**
- Successful completion of the final thesis project (Master's thesis) co-supervised and jointly evaluated by EMNantes and TU Berlin.

For the duration of the double degree program students will be jointly registered at TU Berlin and EMNantes.

3.2.2 Admission

Following an internal process of selection, students will be recommended to EMNantes by TU Berlin for admission to the graduate program of EMNantes.

The selection process shall then go through an evaluation, of the candidate's applications by EMNantes (with regard to academic level, language ability and the candidate's motivation).

Students must demonstrate a good standard in English (TOEFL - a minimum of 80 internet-based test points, or equivalent) and in French (Council of Europe level B2 minimum or equivalent)

The final decision for admission is made by EMNantes, subject to its rules and procedures.

TU Berlin students must have successfully completed their Bachelors degree in Computer Science before admission to EMNantes is confirmed.

Details of the application procedure are provided in a separate document (appendix 1).

A maximum of 5 students may be admitted each year to the EMN from TU Berlin.

4. Costs

4.1 Tuition and fees

Double degree students will pay applicable tuition only to their home institution. No tuition will be paid to the host institution for the entire period of the exchange. Students, however, may be required to pay fees covering costs such as course materials, internet access, etc.

4.2 Other costs

Students must cover their own travel and subsistence expenses – housing, food, insurance etc.

5. Accommodation

The host institution will make every effort to arrange for accommodation for double degree students in a student hall of residence.

6. Language training

Both TU Berlin and EMNantes shall ensure that students have obtained a satisfactory level in the language of tuition of the partner institution.

A "French Summer School" will be proposed by EMNantes, if necessary, for the selected TU Berlin students prior to the start of the academic year.

The cost of the intensive language course shall be borne by the participating students, as well as the other costs mentioned in § 4.2.

7. Tutors

The host institution shall appoint, for each student, a professor as tutor to whom he/she may apply for advice or assistance during his/her stay in the host country.

8. Program coordinators

Both institutions shall appoint a program coordinator responsible for the implementation of the program. In case of any difficulties the two program coordinators are expected to solve the problems by mutual consent.

9. Annual meetings

The persons responsible for the program at both institutions shall meet at least once a year within the frame of the general agreement of cooperation between the EMNantes and TU Berlin in order to :

- review effectiveness of the teaching programs
- examine the academic results achieved by the students in the light of the institutions' joint efforts
- review the selection and admissions procedures and criteria
- decide, each year, the number of students to be admitted to the exchange
- propose further actions

10. Examination regulations

During the studies of EMNantes students at TU Berlin, the examination regulations (Prüfungsordnung) of TU Berlin apply in the current version.

During the studies of TU Berlin students at EMNantes, the examination regulations of EMNantes apply in the current version.

Both partner institutions will hand out a transcript of records in English to students. The Transcript of Records is an official inventory of the courses taken, the achieved number of ECTS credit points, and national grades earned by the students throughout their stay in the host institution. Details of the grading schemes can be found in Appendix 4.

11. Amendments

Amendments to this agreement may be proposed by one of the signatories to explain some articles or to strengthen or broaden some specific aspects of the collaboration.

These amendments will have to be accepted and signed by both authorities before they come into effect.

12. Starting date and cancellation

This agreement comes into effect as of the date of its signing by the authorized representatives of TU Berlin and EMNantes.

Each signatory may cancel this agreement upon ninety days written notice. In such event, the obligations of EMNantes and TU Berlin towards the students, enrolled in this double degree program, will be carried out under the conditions of the present agreement.

11. Conditions

This agreement is subject to the policies and procedures of TU Berlin , as well as the regulations and policies of the authorities governing the Ecole des Mines de Nantes.

For TECHNISCHE UNIVERSITÄT BERLIN

For ECOLE DES MINES DE NANTES

Prof. Dr. Kurt Kutzler
President of TU Berlin

Stéphane CASSEREAU
Director of Ecole des Mines de Nantes

Date : _____

Date : _____

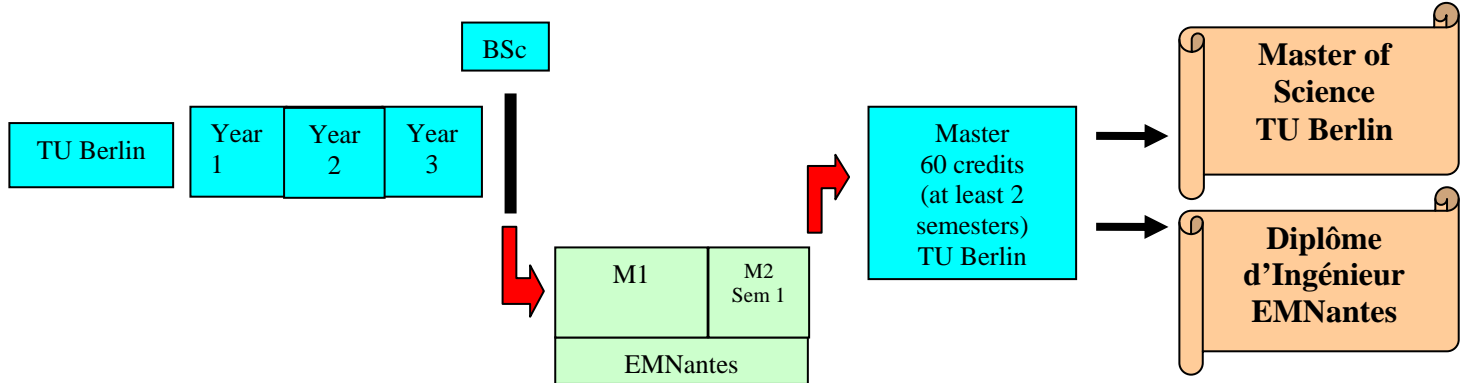
Prof. Dr. Hans-Ulrich Heiß
Dean of Studies, School of EE&CS

Date : _____

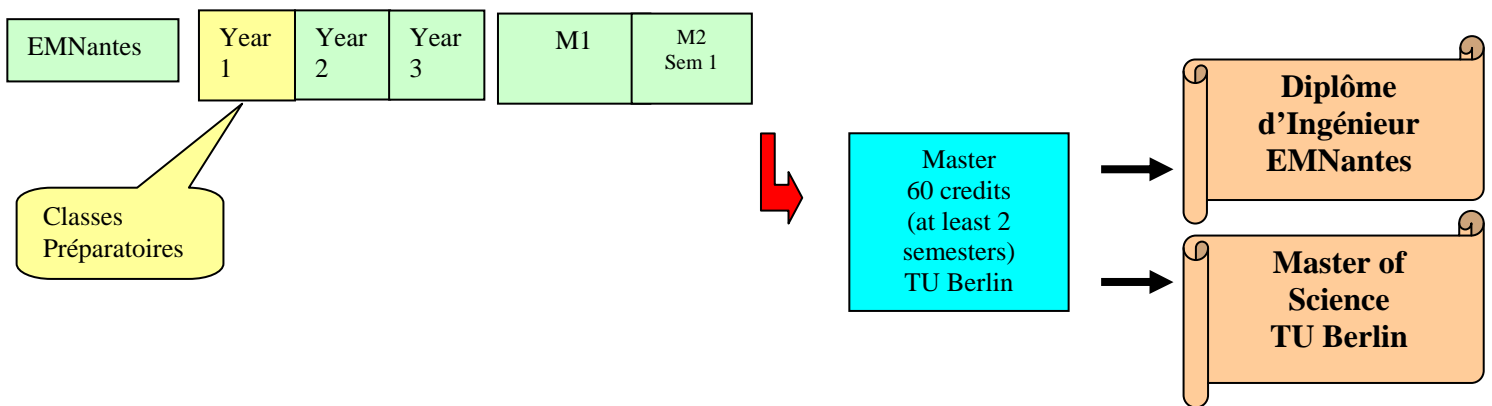
APPENDIX 1

Program structure

For **TU Berlin students** the program structure will be as follows :



For **EMNantes students** the program structure will be as follows :



APPENDIX 2

Application procedure and admission criteria

A. For application to EMNantes (TUB students)

- a. Submission of completed B1 application form by TU Berlin students to TU Berlin coordinator including:
 - copy of transcripts in English of undergraduate courses at TU Berlin
 - letter of motivation in French
 - language certificates
- b. Preselection of candidates by TU Berlin
- c. Submission of EMNantes application form by end of May
- d. Selection of candidates according to article 3.2.2
- e. Students admitted to EMNantes will have the status "élève stagiaire" (probationary student) during their first graduate year at EMNantes. At the end of this year the students must fulfill all the requirements of EMNantes in order to be accepted into the 2nd graduate year as an "élève titulaire" and continue the double degree program.
If the student does not meet all these requirements at the end of the first graduate school year, he/she will not be authorised to continue in the double degree program. However, the credits validated by the student at EMNantes will be transferred to the student's home institution.

B. For application to TU Berlin (EMNantes students)

- a. Submission of application by EMNantes students to EMNantes coordinator.
- b. Preselection of candidates by EMNantes
- c. Submission of application to TU Berlin end of May including:
 - Completed application form
 - Photocopy of passport
 - Copy of transcripts of undergraduate courses translated into English (including Classes Préparatoires) indicating that he/she has successfully completed at least 180 ECTS at EMNantes)
 - A certificate issued by EMNantes saying that his/her achieved qualification level corresponds to a bachelor degree in France.
 - Letter of motivation in German
 - Language certificates
- d. Selection of candidates according to article 3.1.2
- e. Submission by EMNantes of a "Certificat d'établissement" attesting the level (M1) attained by the candidates prior to their admission to TU Berlin
- f. If the student does not obtain the required level (30 ECTS) at the end of his/her first semester at TU Berlin, he/she will not be authorised to continue in the double-diploma program.

APPENDIX 3

PROGRAM DETAILS

A.3.1 General regulations

All students whether from EMNantes or TUB complete the required courses of the first 3 semester of the graduate school in Nantes. Part of this course work can be accepted as course work for the master's program at TUB in different categories. The TUB Master's program requires 54-60 ECTS from computer science, 18-24 ECTS from the minor subject chosen and 12-18 ECTS from Studium Generale, the latter comprising any courses from outside computer science to broaden the students' scientific perspective. Within the 54-60 credits from computer science, at least 30 have to be taken from one of four specialisation areas: System engineering (SE), Dependable Systems (DS), Intelligent Systems (IS), or Communication based Systems (CBS). Due to the special character of the EMNantes programs with an emphasis on business skills, *all students in this DD-program are required to choose Business Administration as their minor subject at TU Berlin.*

Three mandatory courses from EMNantes (1st year: Social Sciences 7 ECTS, 2nd year: Social and Management Sciences 8 ECTS, and Option Project 8 ECTS) can be acknowledged as fulfilling the requirements of the minor subject Business Administration. The courses on Foreign Language (6 ECTS), and Generic Methods for Engineers (7 ECTS) cover the Studium Generale requirements. Other courses from EMNantes can be recognized according to the tables below totalling to 24 ECTS that can be transferred from Nantes to Berlin. That leaves at least CS courses worth 30 ECTS to be completed at TU Berlin. It is recommended to select these courses suited to the subject of the master thesis which has to be done according to the TU Berlin requirements, i.e. scientific orientation, 6 months full time work equivalent to 30 ECTS). Prior to departure to Berlin, students should therefore propose an individual study plan to their respective tutor for approval to make sure that

1. there is no overlap between the courses selected at TUB with courses already taken at EMNantes,
2. the selected courses are appropriate to prepare the student for the field in which he/she plans to write the master's thesis,
3. the minimum of 30 ECTS within the specialisation field is achieved.

	Required at TU Berlin	Transferable from Nantes and recognized at TU Berlin	To be completed at TU Berlin	Total
Course work				
Computer Science (CS)	54-60	24	30	54
Minor Subject (MS): Business Administration (BA)	18-24	23	-	23
Studium Generale (SG)	12-18	13	-	13
Subtotal (course work)	90	60	30	90
Master thesis	30	-	30	30
Total (Master program)	120	60	60	120

Table 1: Fulfilment of TU Berlin Master's Requirements (ECTS)

The particular courses that are recognised at TU Berlin depend on the Graduate Program chosen at EMNantes: GSI, GIPAD, or OMTI and are detailed below.

A.3.2 Computation and Communication Systems Engineering (GSI – Génie des Systèmes Informatiques)

GSI students must take either System Engineering (SE) or Communication-based Systems (CBS) as specialisation field within the TUB Master' s program. Table 2 lists the mandatory courses of the GSI program and indicates if and in which way they can be recognised at TU Berlin.

Graduate School 1st Year	ECTS	Recognized at TUB as		
Operating Systems and Networks	7	-	-	-
Software Engineering	7	-	-	-
Languages and translators	7	-	-	-
One course from Social Sciences	7	-	MS (BA)	-
Foreign Language	6	-	-	SG
Scientific and Technical Project	8	-	-	-
Field Study	3	-	-	-
Internship abroad	6	-	-	-
Generic Methods for Engineers	7	-	-	SG
Sports	2	-	-	-
Graduate School 2nd Year				
Software Engineering II	8	CS (SE)	-	-
Integration Infrastructures	8	CS (CBS)	-	-
Mobile Information System	8	CS (CBS)	-	-
Option Project	8	-	MS (BA)	-
Social and Management Sciences	8	-	MS (BA)	-
Total (Recognised)		24	23	13

Table 2: Recognition of EMNantes courses at TUB for GSI students

A.3.3 Computer Science for Decision Support (GIPAD- Génie Informatique Pour l'Aide à la Décision)

GIPAD students must take Intelligent Systems (IS) as specialisation field within the TUB Master' s program. Table 3 lists the mandatory courses of the GIPAD program and indicates if and in which way they can be recognised at TU Berlin.

Graduate School 1st Year	ECTS	Recognized at TUB as		
Software Engineering	7	-	-	-
Artificial Intellig. and Decision Support	7	-	-	-
Operations Research	7	-	-	-
One course from Social Sciences	7	-	MS (BA)	-
Foreign Language	6	-	-	SG
Scientific and Technical Project	8	-	-	-
Field Study	3	-	-	-
Internship abroad	6	-	-	-
Generic Methods for Engineers	7	-	-	SG
Sports	2	-	-	-
Graduate School 2nd Year				
Combinatorial Optimisation	8	CS (IS)	-	-
Business Intelligence	8	CS (IS)	-	-
Software Engineering II	8	CS (SE)	-	-
Option Project	8	-	MS (BA)	-
Social and Management Sciences	8	-	MS (BA)	-
Total (Recognised)		24	23	13

Table 3: Recognition of EMNantes courses at TUB for GIPAD students

A.3.4 Organisation and Management of Information Technology (OMTI- Organisation et management des technologies de l'information)

OMTI students must take Intelligent Systems (IS) as specialisation field within the TUB Master' s program. Table 4 lists the mandatory courses of the OMTI program and indicates if and in which way they can be recognised at TU Berlin.

Graduate School 1st Year	ECTS	Recognized at TUB as		
Operating systems and networks	7	-	-	-
Software engineering	7	-	-	-
Operations management or Interpreters and compilers	7	-	-	-
One course from Social Sciences	7	-	MS (BA)	-
Foreign Language	6	-	-	SG
Scientific and Technical Project	8	-	-	-
Field Study	3	-	-	-
Internship abroad	6	-	-	-
Generic Methods for Engineers	7	-	-	SG
Sports	2	-	-	-
Graduate School 2nd Year				
Information system analysis	8	CS (IS)		-
The information system and decision processes	8	CS (IS)	-	-
The information system for corporate processes	8	CS (IS)	-	-
Option Project	8	-	MS (BA)	-
Social and Management Sciences	8	-	MS (BA)	-
Total (Recognised)		24	23	13

Table 3: Recognition of EMNantes courses at TUB for GIPAD students

Abbreviations:

MS	Minor Subject
SG	Studium Generale
SE	System engineering
DS	Dependable Systems
IS	Intelligent Systems
CBS	Communication-based Systems
BA	Business Administration

A.3.5 Course list for TUB Master's Program

The following tables list the courses available for the four specialisation areas of the TUB CS master's program. It should be noted that this is subject to change and will be updated each semester.

Specialisation area „System Engineering“ (SE)

Modul-ID(W08)	Modul name	ECTS	Language
MINF-SE-ASE	Agent Oriented Software Engineering	12	G
MINF-SE-AAL	Ambient Assisted Living	12	G
MINF-SE-OSD	Operating System Design	6	E
MINF-SE-OSPJ	Operating System Project	9	E
MINF-SE-EOS	Embedded Operating Systems	6	E
MET-IS3-RechA	Computer Architecture	12	G

MINF-SE-SEES	Software Engineering of Embedded Systems	6	G
MINF-SE-SEES/SE	Software Engineering of Embedded Systems	9	G
MINF-SE-SASS	Semantics and Analysis of Software Systems	6	G
MINF-SE-SASS/SE	Semantics and Analysis of Software Systems	9	G
MINF-SE-EwES	Embedded Systems Design	9	G
MINF-SE-COES	Compiler Optimisation für Embedded Systems	6	G
MINF-SE-COES/SE	Compiler Optimisation für Embedded Systems	9	G
MINF-SE-CEES	Compiler Design für Embedded Systems	9	G
MINF-SE-MVES	Automatic Verification of Embedded Systems	6	G
MINF-SE-OSSE	Open Source Software in Development Cooperation	6	G
MINF-SE-DBS2/PJ	Implementation of Database Systems w/Project(in Planung)	12	E
MINF-SE-DBS/SE	Seminar Hot Topics in Information Management	3	E
MINF-SE-DBS/PJ	Project Hot Topics in Information Management	9	E
MINF-SE-INFINT	Information Integration	6	G
MINF-SE-ReS	Computer Systems	6	G
MTI-EuI-EwDS	Design of digital Systems	6	G
MTI-EuI-EwADS	Design Automation of digital Systems	9	G
MTI-EuI-EwKDS	Design of Complex Digital Systems Project	9	G
MINF-SE-RechE	Computer Design	9	G
MINF-SE-QSP	Quality of Software Process	9	G
MINF-SE-EwSWT	Developments in Software Technology	9	G
MINF-SE-Comp1	Compiler Construction I	6	E
MINF-SE-Com2	Compiler Construction II	6	G
MINF-SE-FP	Funktionale Programmierung	6	G
MINF-SE-ConP	Constraint Programmierung	6	G
MINF-SE-EwKP	Development of Correct Programs	6	G
MINF-SE-Comp/PJ	Compiler Construction Practise	9	G
MINF-SE-PS/PJ	Programming Languages Practise	9	G

Specialisation area: Dependable Systems (DS)

Modul-ID(W08)	Modul name	ECTS	Language
MINF-VS-AlgProCalc	Algebraic Process Calculi	6	E
MINF-VS-DistAlgo	Theory of Distributed Algorithms	6	E
MINF-VS-TempLogSoft	Temporal Logic for Software Engineers	6	E
MINF-VS-VersecProt	Verification of Security Protocols	9	E
MINF-VS-PME	Programming and Modeling of Realtime Systems	6	G
MINF-VS-SWSi	Software Safety	12	G
MINF-VS-GrMT	Graph and Model Transformation	6	G
MINF-VS-GrMT/SE	Graph and Model Transformation-SE	9	G
MINF-VS-KbMK/SE	Component-based Modeling and Correctness -SE	9	G
MINF-VS-KatM/SE	Categorical Methods in Mathematics and Informatics -SE	9	G
MINF-VS-TFS/Aktuell	TFS-Current Topics	6	G
MINF-VS-TFS/AktuSE	TFS-Seminar	6	G

Specialisation area: Intelligent System (IS)

Modul-ID(W08)	Modul name	ECTS	Language
MINF-IS-RCM	RoboCup Master	9	G
MINF-IS-SeSe	Semantic Search	9	G
MINF-IS-PM	Probabilistic and Bayesian Modelling in Machine Learning and Artificial Intelligence	6	E
MINF-IS-HTKI	Hot Topics in Machine Learning and Artificial Intelligence	6	E
MINF-IS-GCG	Generative Computer Graphics	6	G
MINF-IS-MCG	Modelling in Computer Graphics	6	G
MINF-IS-MedInf	Medical Application of Computer Science	6	G
MINF-IS-CG/PJ1	Computer Graphics Project I and Seminar	9	G
MINF-IS-CG/PJ2	Computer Graphics Project II und Seminar	12	G
MINF-IS-InfSys/PJ	Information Systems Project	9	G
MINF-IS-TIS	Technical Information Systems	6	G
MINF-IS-PhotoCV	Photogrammetric Computer Vision	9	E
MINF-IS-DigIP	Digitale Imag Processing	6	E
MINF-IS-AutoIA	Automatic Image Analysis	6	E
MINF-IS-OptRS	Optical Remote Sensing	6	E
MINF-IS-MW&RRS	Microwave and Radar Remote Sensing	6	E
MINF-IS-CV/SE	Seminar Hot Topics in Computer Vision	3	E
MINF-IS-CV/PJ	Projket Hot Topics in Computer Vision	6	E
MINF-IS-ImAna/SE	Seminar Hot Topics in Image Analysis	3	E
MINF-IS-ImAna/PJ	Projekt Hot Topics in Image Analysis	6	E
MINF-IS-3DBA	Stereo Analysis in Videocommunication/ 3D Image synthesis in Videocommunication	6	G
MINF-IS-ITEwl	IT and Developing Countries	12	G
MINF-IS-Infoek	Information Economy	6	G
MINF-IS-NI1	Introduction to Neural Information processing	6	E
MINF-IS-NI2	Advanced Neural Information processing	6	E
MINF-IS-ModInfG	Models of Information Processing in the Brain	6	G
MINF-IS-NN	Neural Information Processing Project	9	E
MINF-IS-NeuroInf	Modern Development in Neuroinformatics	6	G
MINF-IS-BVerfMed	Imaging in Medicine and Neurobiology	6	G
MINF-IS-KI/PJ	Master-Project AI	9	G
MINF-IS-Rob	Robotics	6	G
MINF-IS-Rob/PJ	Robotics Project	9	G
MINF-IS-SYS	Foundation of System Analysis	6	G
MINF-IS-Winf	Special Topics in Business Informatics	6	G
MINF-IS-SYS/PJ	System Analysis Project	12	G
MINF-IS-RgSys	Computer-based System analysis	6	G
MINF-IS-EntArchi	Enterprise Architecture and Service Orientation	6	G
MINF-IS-KN&ST	Knowledge Networks & Semantic Technologies	6	G
MINF-IS-NBT	Net Business Tools	6	G
MINF-IS-ISM	Information Security Management	6	G
MINF-IS-DACS	Data Analysis in Cognitive Science	6	E
MINF-IS-PsyP	Psychophysics	6	E
MINF-IS-TopCS	Topics in Cognitive Science	6	E
MINF-IS-CTCS	Current Topics in Cognitive Science	6	E
MINF-IS-ESB	Continuous education in IT	6	G

Specialisation area Communication-based Systems (CBS)

Modul-ID(W08)	Modul name	ECTS	Language
MINF-KT-AC	Autonomous Communications	12	G
MINF-KT-NA/Glg	Network Architecture - Foundations	6	E
MINF-KT-NA/PE	Network Architecture – Protocol Design	6	E
MINF-KT-NA/PJ	Network Architecture - Master- Project	12	E
MINF-KT-NA/RL	Network Architecture - RouterLab	6	E
MINF-KT-NA/VTK	Network Architecture – Advanced (small)	6	E
MINF-KT-NA/VTG	Network Architecture – Advanced (big)	9	E
MINF-KT-MuO	Models and Ontologies	9	G
MINF-KT-NGN	Next Generation Networks Basis	9	G
MINF-KT-NGN/PJ	Next Generation Networks Practice	6	G
MINF-KT-VS	Distributed Systems	6	G
MINF-KT-SOA	Service Oriented Architctures	9	G
MINF-KT-BKIT	Operation of Complex IT Systems	9	G
MINF-KT-CITPJ	Complex IT Systems Project	12	G
MINF-KT-VSTief	Advanced Distributed Systems	8	G
MINF-KT-ETSVT	Advanced Testing	9	G
MINF-KT-ETSPX	Software Testing Practice	9	G
MINF-KT-OKS	Open Communication Systems	6	G
MINF-KT-OK/PJ1	Open Communication Systems - Project I	12	G
MINF-KT-OKS/PJ2	Open Communication Systems - Project II	6	G
MINF-KT-VC	Visual Computing	6	G
MINF-KT-MobPI	Mobile and Physical Interaction	6	E
MINF-KT-TKN/PJSE	Communication Networks – Advanced Project	9	G
MINF-KT-TKN/PR	Communication Networks Lab	6	G
MINF-KT-TKN/PFPR	Protocol Functions Lab	6	G
MINF-KT-TKN/LB	Performance Evaluation	6	G
MINF-KT-TKN/Sim	Simulation	6	G
MINF-KT-TKN/KTech1	Communication Technologies	6	G
MINF-KT-TKN/KTech2	Communication Technologies -Advanced	9	G
MINF-KT-TKN/PJ	Communication Networks –Project	6	G

APPENDIX 4

Grading scheme

German grades for courses taken at TUB will be translated to EMNantes grades in the following way:

TUB Grades	EMNantes Grade
1,0 and 1,3	A = 4
1,7 and 2,0	B = 3,5
2,3 and 2,7	C = 3
3,0 and 3,3	D = 2,5
3,7 and 4,0	E = 2
5,0 (failed)	Fx = 0 (failed)
<5 (failed)	F = 0 (failed)

Grades for courses taken at EMNantes will be translated to German grades in the following way:

EMNantes Grade	TUB Grade
A = 4	1,0
B = 3,5	1,7
C = 3	2,3
D = 2,5	3,0
E = 2	3,7
Fx,F = 0 (failed)	5,0 (failed)

Based on these numerical grades the final result for the study program will be calculated according to the respective regulations at EMNantes and TUB.