Peter Winandy

Double Degree Study Programs - Information Sheet for Incomings

Study year 2016/2017

The following information sheet provides information to incoming student candidates for the T.I.M.E. double degree program between RWTH Aachen University–Faculty of Electrical Engineering and Information Technology and its T.I.M.E. partner universities.

Content:

1. Partner universities involved in the T.I.M.E. double degree program
2. The basic structure of the Master's degree program 'Electrical Engineering-Information Technology-Computer Engineering' (ET_IT_TI)
3. The basic structure of the T.I.M.E. program
4. Some advices to choose the "right" specialization area
5. Application procedure
6. Language requirements

Faculty of Electrical Engineering and Information Technology | RWTH AACHEN UNIVERSITY

1. Partner universities involved in the double degree program (T.I.M.E.)

T.I.M.E. double degree contracts presently exist between RWTH Aachen University-Faculty of Electrical Engineering and Information Technology and the following partners:

- École Centrale Paris
- École Centrale Lille
- École Centrale Lyon
- École Centrale Nantes
- École Centrale Marseille
- KTH Stockholm – School of Electrical Engineering
- CTU Prag – Faculty of Electrical Engineering
- Keio University – Graduate School of Science and Technology, Japan
- Universidad Pontificia Comillas, Madrid (COMILLAS) – School of Engineering
- Bauman Moscow State Technical University

Hence, students studying at these partner institutions can apply for a double degree study program at RWTH Aachen University-Faculty of Electrical Engineering and Information Technology, in accordance with the agreed double degree contract between both partners.

Since the double degree study programs refer to the Master's degree study program in Electrical Engineering, Information Technology and Computer Engineering at RWTH Aachen University, the principles of that program are explained first before discussing the specifics of the double degree curriculum.

2. The basic structure of the Master's degree program

There exists one Master's degree program 'Electrical Engineering-Information Technology-Computer Engineering' (in German: 'Elektrotechnik, Informationstechnik, Technische Informatik' (ET, IT, TI)) at RWTH Aachen University which splits up in 6 areas of specialization. These areas are partly taught in German and partly in English; two fields of specialization are additionally offered as fully English-taught, international Master's degree courses:

- Electrical Power Engineering (English-taught)
- Communications Engineering (English-taught)
- Electrical Power Engineering (German/English)
- Micro- and Nanoelectronics (German/English)
- Information and Communications Technology (German/English)
- Computer Engineering (German/English)
- Systems Engineering and Automation (German/English)
- Biomedical Engineering (German/English)

You have to choose one of these areas of specialization.

The principle structure of the Master curriculum is the same for all possible areas of specialization. It consists of compulsory elective modules, eligible laboratories and projects within the area of specialization, elective modules and seminars from the full Master's degree program of the faculty as well as additional free elective courses including language courses and soft skills from the full RWTH course program. Hence, the student can study "à la carte". However requirements are imposed on the number of courses (or credits) for each module group. Here, we provide a tabular overview, more information is available at the webpage of the faculty (http://www.elektrotechnik.rwth-aachen.de/cms/~clmm).

Module groups	Credits
Compulsory elective modules from the catalogues A, B and C of the selected area of specialization	36 in total
Elective modules from the full catalogue of the faculty	8 in total
Free elective courses from the full RWTH program (at least 8 up to 16 credits) +	in total not more than 24
Laboratories and/or projects from the catalogue of the selected field of study (at least 4 up to 12 credits) +	
Seminars from the full seminar program of the faculty (at least 4 up to 8 credits)	
Industrial internship (18 weeks) and seminar pertinent to the internship	22 in total
Master thesis including master colloquium	30 in total
Sum over all	**120**

The list of courses for the different fields of specialization and an overview about the course content can be obtained from this webpage (http://www.elektrotechnik.rwth-aachen.de/cms/~npp).

Descriptions of the contents of the courses and the learning targets can be found in the module handbook (German: 'Modulhandbuch') via the corresponding link on the webpage above. The required number of credits per catalogue A, B or C for the compulsory elective modules of a specific area of specialization is also defined in the 'Modulhandbuch'.

There is no fixed order for the modules to be taken. It is however advisable to finish the compulsory elective and the elective modules first, i.e. during semester 1 and 2, before continuing the curriculum with the industrial internship together with the seminar pertinent to the internship and further free elective courses (also available as block lectures) in semester 3. The Master's degree program normally ends with the Master thesis in semester 4.

Hence, the proposed Master curriculum looks as follows:

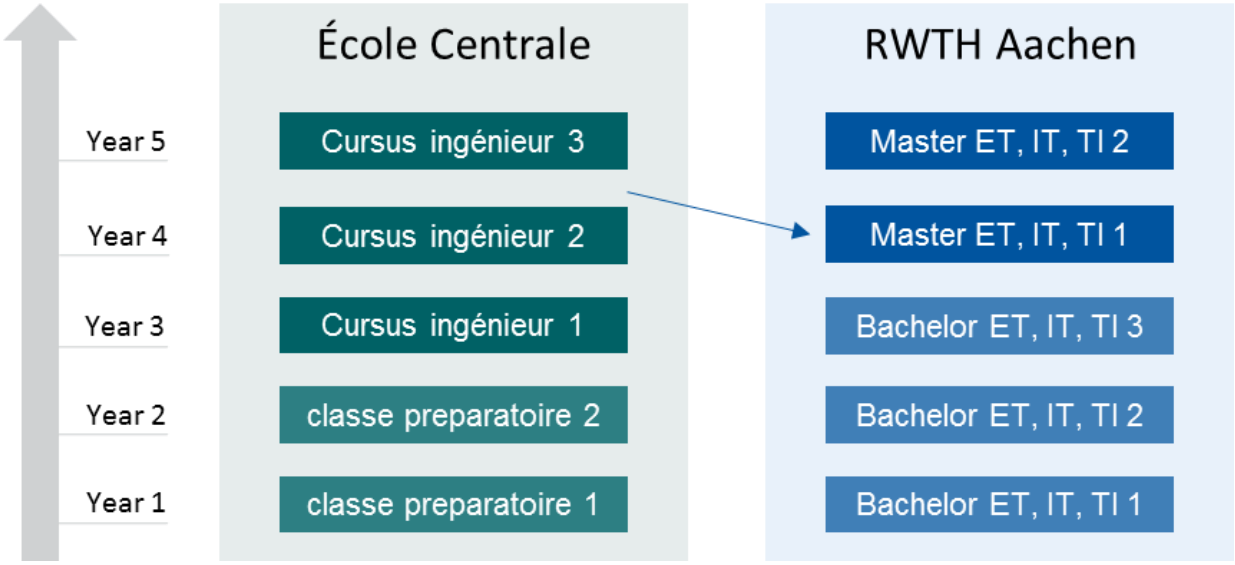
Semester	**RWTH Master Study Program** Electrical Engineering-Information Technology-Computer Engineering	Credits	Sum
1	Compulsory elective modules (catalogues A,B,C): 5 modules	20	32
	Elective modules (faculty): 1 module	4	
	Laboratory and/or project and/or seminar: 2 modules	8	
2	Compulsory elective modules (catalogues A,B,C): 4 modules	16	32
	Elective module (faculty): 1 module	4	
	Laboratory and/or project and/or seminar and/or free elective courses (RWTH program): 3 modules	12	
3	Industrial internship (18 weeks)	18	26
	Seminar pertinent to the internship	4	
	Free elective module (also available as block lecture)	4	
4	Master thesis including colloquium	30	30
Sum over all			**120**

3. The basic structure of the T.I.M.E. double degree curriculum

There are two types of double degree programs which differ in the number of semester spent at RWTH Aachen:

a) The curriculum for students from an École Centrale in France

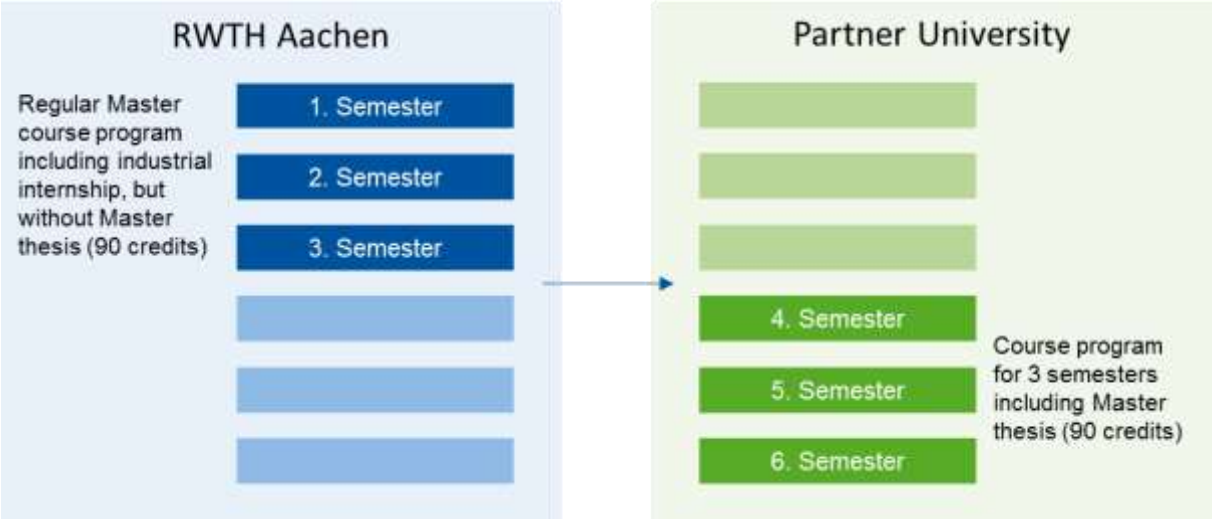
T.I.M.E. students from École Centrale (EC), who have successfully completed the first and second year (semester 5 – semester 8) at EC are enrolled in the Master's degree program Electrical Engineering-Information Technology-Computer Engineering as regular students for the complete Master's degree program with the nominal study time of 4 semesters. After fulfilling the study requirements as prescribed above (and in the examination regulations valid for all regular Master students in that program), therewith gaining 120 credits (ECTS), they will receive the Degree Master of Science from RWTH Aachen and the Diplôme d'Ingénieur from Ecole Centrale.



b) The curriculum for students from KTH Stockholm, CTU Prag, Keio University and Bauman University

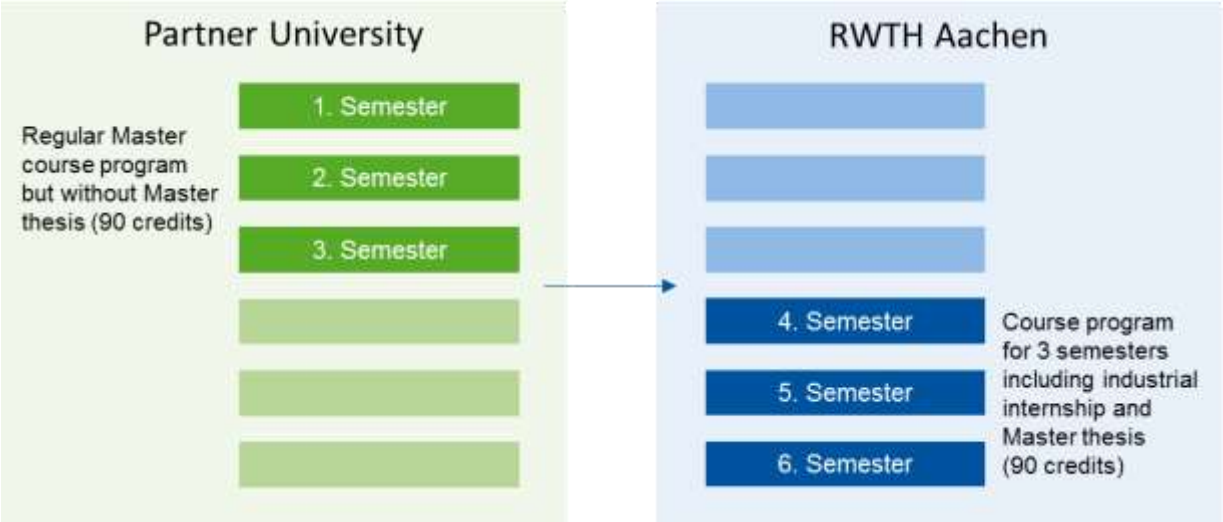
These students complete a reduced Master's degree study program of 3 semesters at RWTH gaining therewith 90 credits (ECTS). At their home university they also follow a 3-semester Master's degree program previous to or after their study period at RWTH. Hence, the total number of semesters is 6. Since the Master curriculum at RWTH can be started either in the winter or in the summer semester (October 1st or April 1st) there are, in principle, several possibilities to structure the complete program. There is only one restriction: the study period at RWTH may not be interrupted. Examples of a possible curriculum are:

Semester 1 to 3 at RWTH; semester 4 to 6 at the partner institution



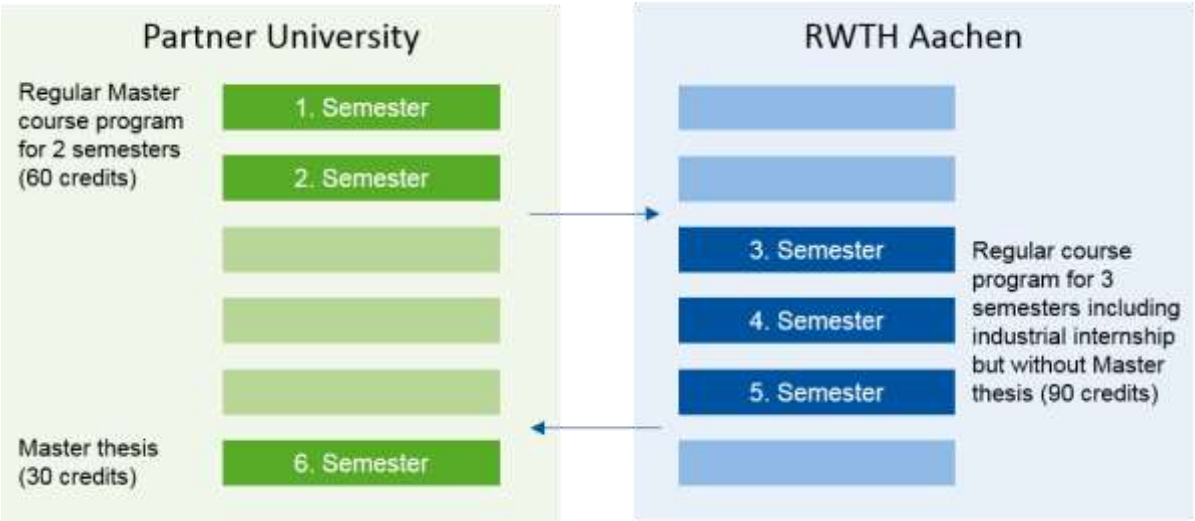
Remarks: See Master requirements for semester 1-3 above, chapter 2

Semester 1 to 3 at the partner institution; semester 4 to 6 at RWTH



Remarks for semesters 4-6: 20 credits to be achieved for compulsory elective courses, 22 credits for industrial internship+seminar, 30 credits for Master thesis, the remaining 18 credits for laboratories, projects, seminars or free elective courses.

Semester 1 and 2 at the partner institution; semester 3 to 5 at RWTH; semester 6 at the partner institution



Remarks for semesters 3-5: 20 credits to be achieved for compulsory elective courses, 22 credits for industrial internship+seminar, the remaining 18 credits for laboratories, projects, seminars or free elective courses.

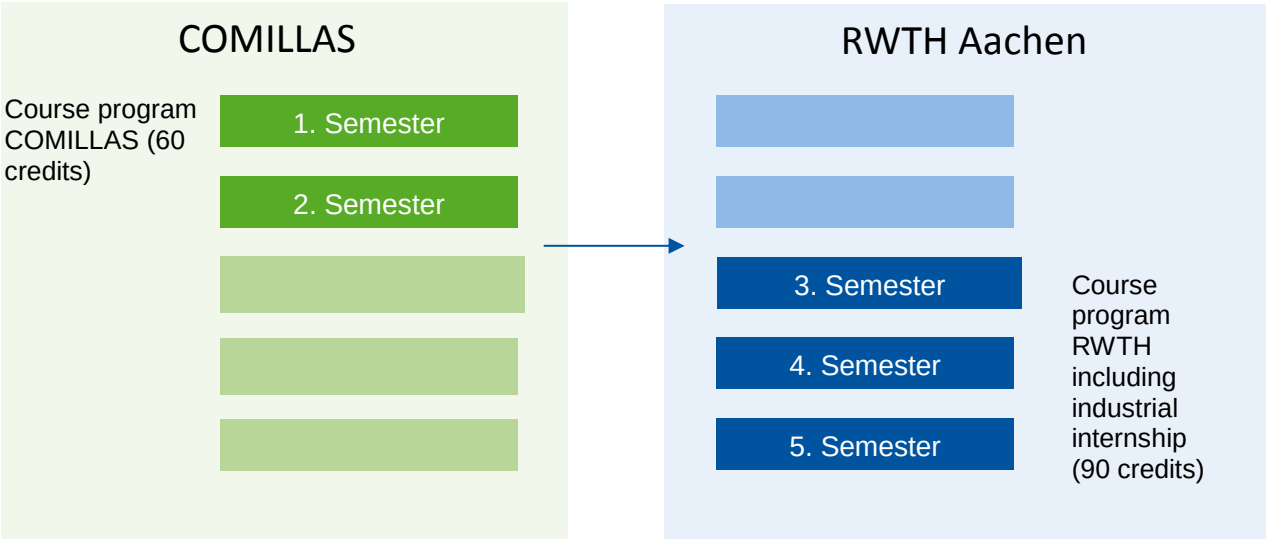
Students doing their Master thesis at their home university have to gain 90 credits at RWTH therewith fulfilling the above mentioned requirements on compulsory elective and elective courses and on the internship with the exception of the 30 credits for the Master thesis.

Students who want to do the Master thesis and the internship at RWTH Aachen have to gain at minimum 20 credits within the compulsory elective modules (catalogues A or B or C) of the selected field of specialization. The rest, i.e., the missing credits in order to reach the required 90 credits can, in principle, be achieved in any type of module, including language course modules. In this way the student can, for example, put emphasis on research oriented projects prior to the Master thesis. In any case, an agreement about the intended curriculum has to be made with the T.I.M.E. coordinator of the faculty.

c) The curriculum for students from COMILLAS Madrid

Since COMILLAS students have completed a four-year Bachelor's degree program their double degree Master's degree study program is limited to two semesters at COMILLAS and three semesters at RWTH Aachen as follows:

Semester 1 and 2 at the partner institution; semester 3 to 5 at RWTH



4. Some advices to choose the “right” specialization area

In principle, T.I.M.E. students can freely select one of the offered areas of specialization. They should however evaluate whether they have acquired sufficient pre-knowledge during their previous studies for the particular field. For example, Master courses on micro- and nano-electronic circuit design require pre-knowledge in basic and fundamental electronic circuits, instructed in a Bachelor course typically validated with 8 credits or more.

The following areas of specialization are particularly recommended for T.I.M.E. students of the Écoles Centrales:

- Information and Communications Technology (German/English)
- Computer Engineering (German/English)
- Systems Engineering and Automation (German/English)
- Biomedical Engineering (German/English)

T.I.M.E. students from KTH Stockholm, CTU Prag or Keio University can decide whether they choose the same area of specialization at RWTH Aachen as the one they are following at their home university or whether they choose a different one.

In the first case they can substantially deepen and broaden their knowledge in the same study and research field. Doubling of courses should, of course, be avoided.

To decide for two different fields of study is a particularly attractive way to widen the horizon and to gain a high flexibility in the area of electrical engineering, properties which are highly recognized during the professional life as an engineer. Since both areas of specialization are, however, instructed during a time-reduced master program, it is recommendable to choose areas which have a sufficiently large (interdisciplinary) overlap. Examples of these combinations could be:

- Information and Communications Technology + Micro- and Nanoelectronics
- Electrical Power Engineering + Systems Engineering and Automation
- Information and Communications Technology+ Electrical Power Engineering
- Biomedical Engineering+ Information and Communications Technology
- etc.

For further information or discussion, please contact the T.I.M.E. coordinator at RWTH Aachen, Electrical Engineering: **Dr. H. Wehr** (wehr@fb6.rwth-aachen.de).

5. Application procedure

The application procedure for the T.I.M.E. program is described on the webpage of RWTH Aachen (http://www.rwth-aachen.de/cms/~fcya).

You can download the application form. Please add all documents described, in particular a transcript of records for your ongoing or completed (Bachelor's) study program and if applicable for the ongoing Master program at your home university. You should also specify the field of specialization within the Master program and send a first draft of the study plan for the next two semesters to RWTH Aachen. The application forms have to be accompanied by an official letter from your home university or your faculty stating that you have been nominated as a T.I.M.E. candidate.

Responsible contact person to be addressed in case of questions:

Ms Antonia Vietz M. A.

Incoming Student Services

antonia.vietz@zhv.rwth-aachen.de

6. Language requirements and language courses

If you are applying for the English taught areas of specialization you need to have English language skills at a level of at least B1. For the German/English taught areas of specialization you need a level of at least B1 in both languages, German and English.

The RWTH Aachen Language Center of the Faculty of Arts and Humanities offers two language programs for T.I.M.E. students and other exchange students:

- A preparatory intensive German course
- Semester courses

1. Preparatory intensive German course

In preparation for your stay in Aachen, you can refresh and broaden your German in the RWTH Euro Course, a 4-week intensive program that takes place in September. This language course is intended for students, who already have a basic knowledge of German, that is, at least an A2.2 level.

All exchange and program students can apply, who are also applying for the winter semester or whole academic year. An intensive German course is not offered before

the summer semester. Application takes place online between the middle of June and August. You will receive additional information about registration and a link to the registration page via email after you have submitted your application for an exchange placement to the RWTH International Office.

After sitting a compulsory placement test, students receive 20 hours a week of instruction. There is an accompanying cultural program and various events and get-togethers. Students must write a final exam and based on their results will be placed in an appropriate semester course starting in October.

2. Semester courses

During your stay and after the Euro course, you are invited to continue your German courses during the semester. The RWTH Aachen Language Center offers a series of courses aimed at both beginners and advanced students.

For further information on the German language courses, please refer to the website of the RWTH Language Center (http://www.sz.rwth-aachen.de).

For further information on the double degree study programs, please contact the Student Exchange/ ERASMUS Office of the Faculty of Electrical Engineering and Information Technology at student-exchange@fb6.rwth-aachen.de or the T.I.M.E. coordinator at RWTH Aachen, Electrical Engineering: **Dr. H. Wehr** (wehr@fb6.rwth-aachen.de).