

**Agreement on Common Bachelor Degree Program of  
Computer Science (International Program) Dual-Degree  
between  
Rose-Hulman Institute of Technology, U.S.A.  
and  
Hochschule Ulm-University of Applied Sciences, Germany**

**1. Introduction**

Pursuant to the Memorandum of Understanding between Rose-Hulman Institute of Technology, Terre Haute, IN, U.S.A. and Hochschule Ulm-University of Applied Sciences, Germany, this Agreement on Common Bachelor Degree Program of Computer Science (International Program), defines specific terms intended to ensure the successful implementation of this new degree program.

The program is initially based on the degree programs “Computer Engineering” (HSU) and “Computer Science” (RHIT). It comprises four years. The initial two years will be spent studying at the students’ home universities in the corresponding degree programs and curricula. The third year will take place at HSU and the final year will take place at RHIT.

**2. Student Selection and Enrollment**

- 2.1 The Computer Science International Program is founded on a reciprocity basis, with the intention of exchanging an equal number of students at any one time. The current number of students to participate on either side is five (5). This number may be adjusted upon mutual agreement of both institutions.
- 2.2 Prerequisite for registration in the program is a successful university entrance qualification with above average results. Both universities decide in accordance upon the number of places to be assigned by each university prior to the application deadline. Students must be in good standing at the home institution, meet the academic entry requirements of the host institution which are applied to regular university students, and be proficient in the language of instruction at the host institution to qualify for nomination.

Application must be made on the host institution's application form in whichever format the host institution requires and include any additional required credentials. Notification of admission will be sent to students, with a copy of each notice being sent to the designated office of the home institution.

- 2.3 Enrollment during the year abroad at each institution is only possible in the winter semester at HSU and the fall quarter at RHIT. Students must be enrolled full-time at each institution.
- 2.4 Visiting students shall be subject to the same rules and regulations as those of the students at the host institution during the period of their visit. For periods of study that are completed at the Ulm University of Applied Sciences, Part A of the currently valid “Study and Exam Regulations” (“Studien- und Prüfungsordnung der Hochschule Ulm”) shall apply. For periods of study that are completed at Rose-Hulman Institute of Technology, the “Academic Rules and Procedures” shall apply under the same terms. These documents are on the respective institutions’ websites.
- 2.5 Incoming students will be provided openings in on-campus or university-approved housing, full-time enrollment in courses, orientation, academic, and other services provided to regularly enrolled students. The host institution will make reasonable effort to assist the students to obtain housing and with other matters of hospitality and orientation, but is not obliged to provide housing or financial assistance of any kind whatsoever. The student is responsible for paying all housing fees directly to the host institution or its housing office.
- 2.6 Students will pay normal tuition costs to their home institution and will not be charged academic tuition by the host institution. However, the fee waiver does not apply to fees outside academic tuition, such as fees paid to student services organizations that support general infrastructure for all students, laptop rental, health insurance, or incidental fees (e.g. health services fees, fees for transportation services, etc.). Students are responsible for all travel expenses related to the Program.
- 2.7 Medical expenses, including hospitalization, are the responsibility of students participating in the Program. Each RHIT student will be required to purchase Rose-Hulman Accident/Sickness insurance as well as public health insurance in Germany for the year of their study in Ulm. Each HSU student will be required to purchase Rose-Hulman Accident/Sickness insurance for the year of their study at Rose-Hulman.
- 2.8 Each institution will issue the necessary immigration documentation to allow the other’s students to apply for the appropriate student visa. Students shall be responsible for obtaining their own visas and completing the required immigration formalities, and for obtaining the travel and other related documents needed to pursue their studies at the host institution.
- 2.9 Each institution will notify the other of the necessary application and registration deadlines to ensure that the students have sufficient time to apply for and prepare to study at the partner institution.
- 2.10 Obligations of the two institutions under this Agreement are limited to dual-degree students only, and do not extend to their spouses and dependents if any.

- 2.11 No monies or monetary consideration will be exchanged between the two institutions in relation to the Program, nor will there be any indemnities, reimbursements for expenses, or sharing of fees or profits arising from the Program.

### **3. Structure of the Program**

- 3.1 In general, beginning in the third year of the program the program language is English. Required courses in which Rose-Hulman students are enrolled are presented in English (except German language courses). Exams in these courses are held in English.
- 3.2 The study is divided in modules, limited in time and content. The modules are explained in Annex 1. They are either mandatory or optional subjects.
- 3.3 All modules are weighted by credit points. European Credit Points (ECTS) correspond to approximately 30 hours of student's work. American Credit Points (US-CP) correspond to 1 lecture hour for a 10-week term.
- 3.4 Annex 1 defines for each module
- required achievements during the term and final exams at the end of the term
  - amount of student's work in terms of ECTS points and US-CP credits
  - study hours of the subject
  - assignment to the term and responsible university
- If necessary, single modules might be replaced by other comparable modules. Modules are either required or elective as indicated in Annex 1.
- 3.5 All students will receive a university IT account from both institutions, from the home institution at the time of enrollment and the host institution at the time of arrival at the host institution. Students will keep both accounts until they return to their home institution, complete the program, or withdraw from it.
- 3.6 Students will be assigned an academic advisor at the host school on or before their arrival at the host school. Students will continue to be advised academically at their home institution according to the advising policies of the home institution.

### **4. Exams**

- 4.1 Exams take place immediately after the lecture period at the end of the terms and at the university responsible for the module.
- 4.2 Exams may be oral or written.
- 4.3 Non-participation without excuse means that the exam is not passed.

- 4.4 The exam policies and practices of the institution where the module is taken apply. Students in the program must satisfy the graduation requirements and policies of both institutions.

## 5. Advisory board

- 5.1 There will be a common advisory board consisting of at least six people, at least three from each institution. Each institution may nominate faculty members from its program, members of its international office, and students enrolled in the program. There must be at least one faculty member from each institution on the advisory board.
- 5.2 The purpose of the advisory board is to offer guidance to the program administrators on how to improve the various aspects of the program.

## 6. Bachelor Thesis

- 6.1 Students must produce a bachelor thesis to prove their capability for independent academic work. The student will show that he or she is able to work in the area of computer science and is able to solve technical problems typical for computer scientists.
- 6.2 The bachelor thesis will be completed at the end of the last term at RHIT. The bachelor thesis must be completed no later than 6 months following the end of the last term of study at RHIT.

According to the study plan, the bachelor thesis will be done at RHIT. In cases where the student is not able to do so, it can be done at HSU. The thesis may be performed at a location (institute or company) outside the institutions, subject to local regulations and policies. RHIT is not responsible for locating a position for the student, although the student may make use of services provided by RHIT to search for and secure a position.

- 6.3 The thesis work will consist of a written report and an oral presentation.
- 6.4 The bachelor thesis will be supervised by two Professors, one at HSU and the other at RHIT. The first supervisor is the local supervisor. They must be a member of the faculty of Computer Science & Software Engineering (RHIT) or Informatik (HSU) respectively. The supervisors decide upon “passed” or “not passed” and propose a mark (to be used in the German record “Zeugnis”), which is a weighted average: the local supervisor’s mark is weighted with 60/100, the remote supervisor’s mark with 40/100.

- 6.5 If the technical prerequisites of an online web-based conferencing system are available, the non-residing supervisor may follow the oral presentation.

## 7. Marks (Grades)

- 7.1 The following marks (US and German) are applied for each exam or module:

### RHIT:

A	excellent
B+, B, C+, C	sufficient
D, D+	not sufficient, must be repeated (as per section 7.3 below)
F	not passed

### HSU:

1.0, 1.3	sehr gut
1.7, 2.0, 2.3	gut
2.7, 3.0, 3.3	befriedigend
3.7, 4.0	ausreichend
4.3	not used as grade
4.7, 5.0	ungenügend (not passed)

- 7.2 Marks received at HSU will be transferred to RHIT according to the following reference table. Courses with marks up to 4.0 received at HSU will be transferred to RHIT as transfer credit. The grade concordance is as listed below:

1-1.3	as	A
1.7-2.0	as	B+
2.3-2.7	as	B
3.0-3.3	as	C+
3.7-4.0	as	C
4.7-5.0	as	F

Marks received at RHIT will be transferred to HSU according to the following reference table:

A	as	1.0
B+	as	1.7
B	as	2.3
C+	as	3.0
C	as	4.0
D+	as	4.7
D	as	4.7
F	as	5.0

D and D+ grades earned at Rose-Hulman, while earning credit toward a Rose-Hulman degree, do not earn credit toward a HSU degree.

- 7.3 In order to earn the HSU degree, students must obtain a minimum of 4.0 for each course at HSU.  
In order to earn the Rose-Hulman degree, students must obtain a minimum average of C for courses at RHIT.

## 8. Certificates and Degrees


- 8.1 Each institution produces the final records compliant with the local practice and applying locally used marks.
- HSU will provide all students who successfully complete the program a “Zeugnis” and a “Diploma Supplement”.
- RHIT will provide all students who successfully complete the program a “Transcript”, and a “Diploma”.
- 8.2 Completion Date will be the date of the last exam.
- 8.3 In the “Zeugnis” produced by HSU:
- (a) for HSU students: all of the students’ modules and related marks from the first three years (at HSU) are mentioned. Marks from the fourth year (at RHIT) will be entered based on the grade equivalencies detailed in section 7.2.
  - (b) for RHIT students: successful courses from the first two years (at RHIT) are mentioned as “passed” only. Marks from the third year (at HSU) are recorded as usual for HSU modules. Marks from the fourth year (at RHIT) will be entered based on the grade equivalencies detailed in section 7.2.
- The overall mark is calculated as an ECTS-weighted (see Annex 1) mean of all marks including the thesis mark. In addition, students receive a diploma supplement document with all relevant information about the program.
- 8.4 In the transcript produced by RHIT:
- (a) for RHIT students: all of the students’ grades earned at RHIT (from the first two years and the fourth year) are recorded as usual for RHIT courses. Successful courses as outlined in 7.2 taken during the third year (at HSU) will be recorded as transfer courses and considered “passed” only.
  - (b) for HSU students: successful courses from the first three years (at HSU) are recorded as transfer courses and considered “passed” only. Grades from the fourth year courses (at RHIT) are recorded as is usual for RHIT courses.
- 8.5 Both universities confer the degree Bachelor of Science (BSc.).

## 9. Duration of Agreement

This Supplemental Agreement will be effective immediately upon signing by both parties. Modifications will be effective upon signing of a revised agreement by both parties.

This Supplemental Agreement may be terminated at any time with the mutual consent of both institutions, which termination must be in writing and signed on behalf of both institutions.

This Supplemental Agreement may be terminated by one institution giving the non-terminating institution twelve (12) months' notice in writing of the intention to terminate. Students currently enrolled in the program at both institutions will be allowed to complete the program. Students are considered enrolled at the time they declare the ICS major at RHIT, and when they are accepted into the ICS program at HSU.



Dr. James Conwell, President

Rose-Hulman Institute of Technology

Date: 2016-09-14



Prof. Dr. rer. Nat. Volker Reuter, Rektor

Hochschule Ulm  
University of Applied Sciences

Date: 2016-09-14

### Annex:

- (1) The program leads to acquisition of 240 ECTS credits in eight semesters. In every academic year 60 ECTS credits can be acquired. In the United States the program leads to acquisition of 192 quarter credits in 12 quarters (three academic quarters per academic year).
- (2) During the fifth semester, the student shall choose a special subject within computer science for further, in-depth study according to personal preferences from a catalog which is published by the Faculty. Not every special subject is offered annually. A special subject consists of three modules, each with 5 ECTS; two out of three modules have to be taken.
- (3) The elective modules shall be selected from a catalog of creditable elective modules published by the Faculty.
- (4) Hochschule Ulm students are required to do an internship under professional guidance, totalling at least 100 days of attendance, doing independent project-related work relevant to their future professional fields. Rose-Hulman students are required to undertake a meaningful internship not later than the summer between their second and third years.
- (5) Only those candidates who have a successful record of the course achievements shall be admitted to the necessary examinations. The academic performance of the internship shall be provided no later than 2 weeks after the commencement of lectures of the subsequent semester.
- (6) Only students in good standing shall be admitted to study at the host institution. No more than two exams compared to the usual amount of exam may be open.
- (7) Part of the examinations may be held a week before beginning of lectures in the subsequent semester. Examinations and examination dates will be announced at the appropriate time.
- (8) For the Hochschule Ulm degree, in determining the overall grade for the Bachelor's preliminary diploma and the Bachelor's diploma, the individual modules are weighted according to the number of ECTS credits. For the Bachelor's preliminary diploma, the examination results of the first two curricular semesters are taken into account. For the Bachelor's diploma, the examination results of the last six curricular semesters are taken into account. For the Rose-Hulman degree, in determining the overall grade (final grade point average) for the Bachelor's diploma, the individual courses are weighted according to the number of quarter credits and all course grades for courses completed at Rose-Hulman are taken into account.
- (9) Required modules necessary for the successful completion of the program and related coursework and examinations are detailed in the following table:



**Computer Science (International Program) - HSU-Students**

Module Group	Type	LH	ECTS credits							Course Achieve.	Final Exam	
			1	2	3	4	5	6	7/8			
Introduction to Business Economics	L	4	5									W
Calculus 1	L+E	4	5								LN	W
Programming 1	L+Lab	4	5								LE	W
Introduction to Computer Science	L+Lab	4	5								LE	W
Technical Foundations of Computer Science	L+Lab	4	5								LE	W
Introductory Project	P+S	4	5				I				LN	
Linear Algebra	L+E	4		5			N				Paper	W
Programming 2	L+Lab	4		5			T				LE	W
Computer Networks	L+Lab	4		5			E				LE	W
Databases	L+Lab	4		5			R				LE	W
Theoretical Computer Science	L+E	4		5			N				Paper	W
Microcomputer Technology	L+Lab	4		5			S				LE	W
Technical English	L+E	4			5		H					W
Calculus 2	L+E	4			5		I				Paper	W
Programming 3	L+Lab	4			5		P				LE	W
Algorithms & Data Structures	L+Lab	4			5						LE	W
Physics 1	L+Lab	4			5							W
Digital Systems	L+Lab	4			5						LE	W

Local (HSU shown)



Design and Analysis of Algorithms		4						5		5)
Theory of Computation		4						5		5)
Bachelor Thesis	P	4						12		Thesis, Pres
Seminar on Bachelor Thesis	S	2						3		
Total		169	30	30	30	30	30	30	60	
US credit points			48		48		48	48		

### Computer Science (International Program) - RHIT-Students

Module Group	Type	LH	US credit points											Course Achieve.	Final Exam	
			1. year			2. year			3. year		4. year					
			1	2	3	4	5	6	7	8	9	10	11			
Introduction to Software Development	L+Lab	4	4												LE	W
Calculus 1	L+E	5	5												Paper	W
Physics I	L+Lab	4	4												LE	W
Rhetoric and Composition	L+E	4	4												Paper	W
College and Life Skills	L	1	1												LN	
Object-Oriented Software Development	L+Lab	4		4											LE	W
Calculus II	L+E	5		5											Paper	W
Physics II	L+Lab	4		4											LE	W
Elective	L	4		4												5)
Introduction to Computer Systems	L+Lab	4			4										LE	W
Calculus III	L+E	5			5										Paper	W
General Chemistry I	L+Lab	4			4										LE	W
Elective	L	4			4											5)
Computer Architecture I	L+Lab	4				4									LE	W
German Language and Culture I	L+E	4				4									Paper	W
Matrix Algebra and Systems of Differential Equations	L+E	4				4									Paper	W
Discrete and Combinatorial Algebra I	L+E	4				4									Paper	W
Data Structures and Algorithm Analysis	L+Lab	4					4								LE	W

Local (RHIT shown)





LE	Lab Elaboration
LN	Other proof of performance
O	Oral exam
Paper	Written homework exercises
Pres	Oral presentation, 15 min (if not stated other)
WR	Work results
W	Written exam