

ALLIANCE TECH

*Computer Science
Engineering*



Vision and Values

Context, Vision, Values, Competitive Advantages and Governance structure

Vision

- Develop strategic alliance of 4 top Engineering Schools, of different **European cultures**, located in «**global cities**» in the «**economic heart**» of Europe, forming a **European Campus** without borders for their students and their faculty
 - With common values
 - Promoting common programmes and providing students with the opportunity to spend one or two terms in partner universities
 - Encouraging exchange of faculty members (also with double appointments)
 - Sharing critical technological infrastructures to ensure critical mass
 - With a common strategy towards emerging countries (joint promotion, shared locations)

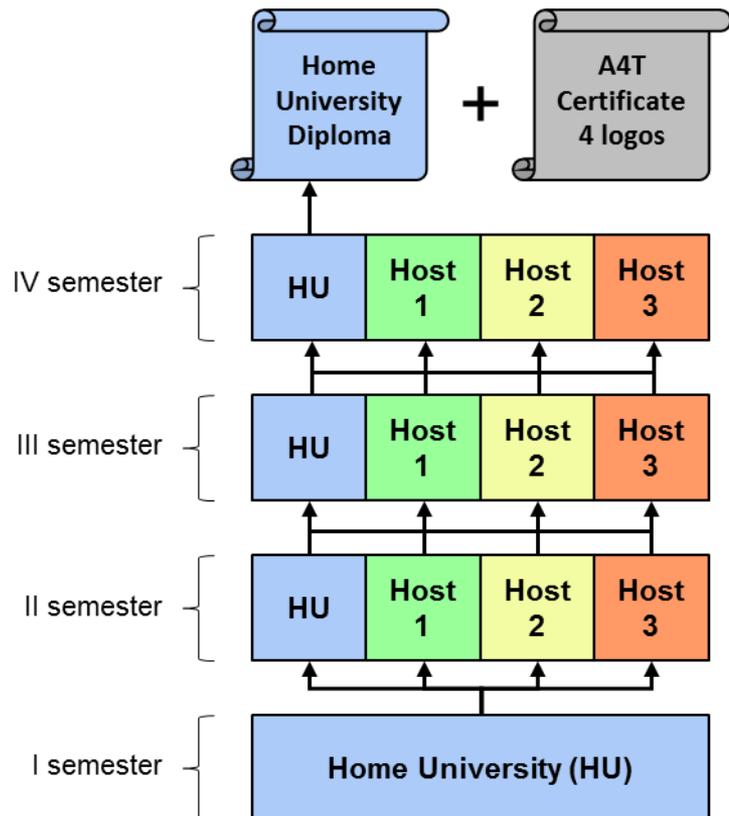
Values

- Through their joint actions, the values promoted by the **Alliance** are the following:
 - **Innovation and Entrepreneurship**
 - **Leadership and Creativity**
 - **Social Responsibility and Ethics**
 - **Cultural Diversity and International Environment**

Computer Science Engineering (Berlin, Milan, Paris)

Free-mobility MSc courses

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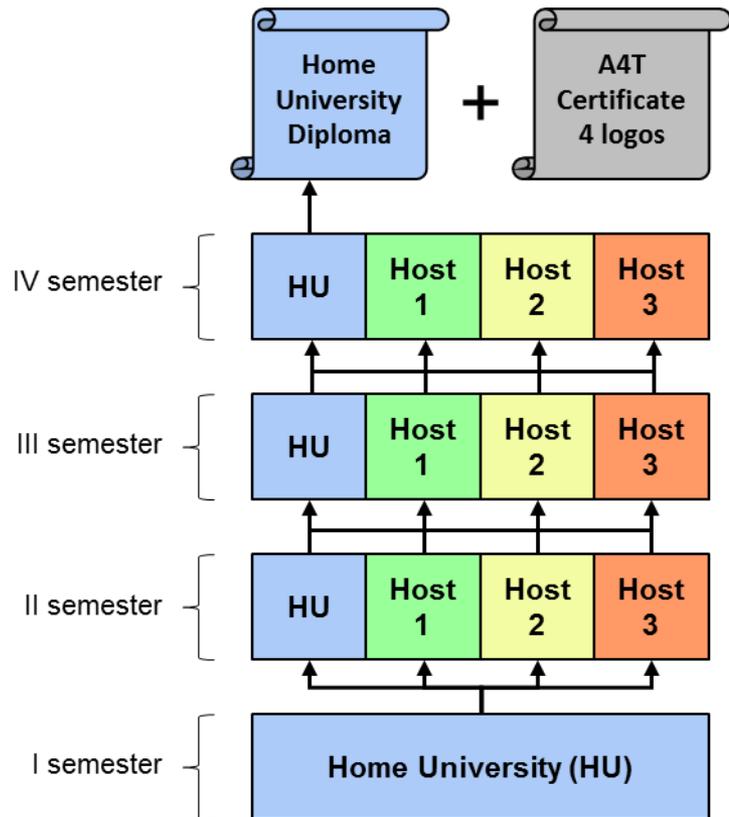


- Students enrolled in any of the partner universities are entitled to take up to 60 credits (ECTS) from the other two institutions
- Graduates will receive their standard Diploma from their Home University plus a Joint Programme Certificate with the 4 logos and the signature of the 4 Rectors

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Free-mobility MSc courses

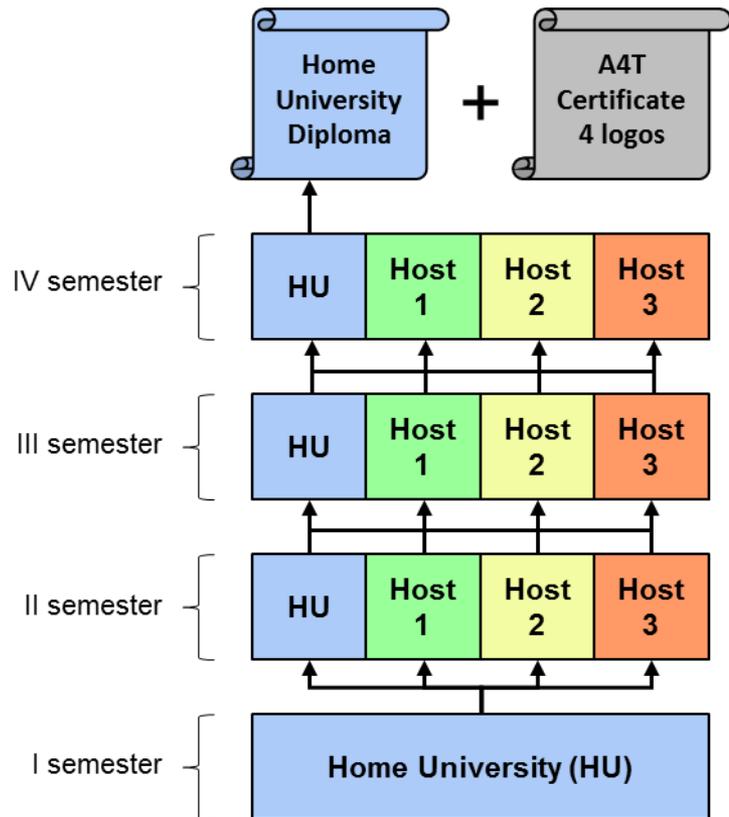
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- The number of participants will be limited to a maximum of ten students from each university per year in addition to already existing standard Erasmus agreements
- Students are encouraged to have master thesis supervisors from at least two universities. The thesis must be written in English and has to follow the examination regulations of the home University

Free-mobility MSc courses

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- The “Alliance4Tech Certificate” shall be awarded to students selected for the A4T mobility programme who must fulfil the following requirements:
 - They have spent a visiting period abroad in at least 2 partner institutions of the A4T programme;
 - They have gained at least 30 ECTS abroad;
 - They have gained at least 5 ECTS in each visited institution.

Suggested study plans

Selected students will attend the standard curricula at their home institution.

They will have the opportunity to select up to two semesters abroad

The following tables show modules offered by each A4T partner institutions to the visiting students.

The list of modules may change from one year to another. Some modules might have a limited number of students allowed for participation.

The available choices are obviously subject to timetable.

CentraleSupélec

FIRST SEMESTER

CODE - COURSE	LANG.	ECTS
EN1110 - Advanced Heat Transfer	Eng	3
EN2940 - Electrical aircraft	Fr/Eng	3
MA2610 - Scientific computation	Fr	3
MG1300 - Structural Dynamics and Acoustics	Eng	3
MG1400 - Mechanical behaviour of materials	Fr	3
MG1600 - Nanomechanics	Eng	3
MG1700 - Maintenance of a railroad way	Fr	3
PH2100 - Waves	Eng-Fr	3
PH2200 - Synchrotron	Eng	3
PH2250 - Nuclear reactor	Fr	3
PH2300 - Structure of matter	Eng-Fr	3
PH2450 - Chemistry for industry	Eng	3

BOTH SEMESTERS

CODE - COURSE	LANG.	ECTS
EN1920 - Aerodyn & Energy labs	Eng-Fr	2
EN2910 - Aircraft design	Eng	3
MG1200 - Civil Eng	Fr	3
PR3100 - Chemical Eng	Eng	3
PR4300 - Cogeneration and energy production	Eng	3
WP5200 - Innovation Project	Eng	9

SECOND SEMESTER

CODE - COURSE	LANG.	ECTS
EN1120 - Heat Transfer	Eng	3
EN1201 - Fluid Mechanics	Eng	3
EN1500 - Nuclear Energy	Eng	3
EN1600 - Renewable Energy	Fr	3
EN1700 - Intro to neutronics	Fr	3
EN1800 - Numerical Methods	Eng	3
EN2930 - Powertrain design	Fr/Eng	3
MA2620 - ODE & dynamics systems	Fr	3
MA2814 - Intro to random modelling	Eng	3
MA2826 - Discrete Math for systems	Fr	3
MG1500 - BioMechanics	Fr	3
MG2812 - Introduction to acoustic	Fr	3
MG2814 - Economics and design of dams	Fr	3
MG2815 - Soil and granuler materials	Fr	3
MG2816 - MEMS	Fr	3
MG2817 - Application of finite elt methods	Eng	3
MG2818 - Oil & Gas explo and production	Eng	3
MG2910 - Sustainable buildings and architecture lab	Fr	3
MG2920 - Powertrain design	Eng	3
PH2813 - Advanced material for ICT	Eng	3
PR1100 - Introduction to Materials	Eng	3
SE2650 - Risk assessment & Mngnt	Eng	3

Politecnico di Milano

FIRST SEMESTER			
CODE	COURSE	LANG.	ECTS
095903	ADVANCED OPERATING SYSTEMS	Eng	5
097685	ADVANCED USER INTERFACES	Eng	5
080931	ALGEBRA AND MATHEMATICAL LOGIC	Eng	5
089214	ARTIFICIAL INTELLIGENCE	Eng	5
089169	AUTONOMOUS AGENTS AND MULTIAGENT SYSTEMS	Eng	5
095944	BIOINFORMATICS AND COMPUTATIONAL BIOLOGY	Eng	5
096120	COMMUNICATION NETWORK DESIGN	Eng	5
097677	COMPUTER ETHICS	Eng	5
090914	CONTROL OF INDUSTRIAL ROBOTS	Eng	5
097678	DATA ACQUISITION SYSTEMS	Eng	5
089183	DATA BASES 2	Eng	5
094743	DATA MANAGEMENT FOR THE WEB	Eng	5
093212	DESIGN AND IMPLEMENTATION OF MOBILE APPLICATIONS	Eng	5
097681	DISCRETE DYNAMICAL MODELS	Eng	5
093269	DISCRETE MATHEMATICS	Eng	5
093216	DISTRIBUTED SOFTWARE DEVELOPMENT	Eng	5
090950	DISTRIBUTED SYSTEMS	Eng	5
096261	E-HEALTH METHODS AND APPLICATIONS	Eng	10
095907	EMBEDDED SYSTEMS	Eng	10
095905	EMBEDDED SYSTEMS 1	Eng	5
089182	FORMAL LANGUAGES AND COMPILERS	Eng	5
088983	FOUNDATIONS OF OPERATIONS RESEARCH	Eng	5
099325	FUNDAMENTALS OF MULTIMEDIA SIGNAL PROCESSING	Eng	5
088976	GAME THEORY	Eng	5
095901	ICT FOR CONTROL SYSTEMS ENGINEERING	Eng	5
095945	ICT FOR HEALTH CARE	Eng	5
099993	IMAGE ANALYSIS AND COMPUTER VISION	Eng	5
090931	MIDDLEWARE TECHNOLOGIES FOR DISTRIBUTED SYSTEMS	Eng	5
088946	NATURAL LANGUAGE PROCESSING	Eng	5
089180	NUMERICAL ANALYSIS	Eng	5
095943	PRINCIPLES OF PROGRAMMING LANGUAGES	Eng	5
097686	RECOMMENDER SYSTEMS	Eng	5
093060	SAFETY IN AUTOMATION SYSTEMS	Eng	5
099324	SENSOR SYSTEMS	Eng	5
089216	SOFT COMPUTING	Eng	5
089184	SOFTWARE ENGINEERING 2	Eng	5
089202	TECHNOLOGIES FOR INFORMATION SYSTEMS	Eng	5
089175	VIDEOGAME DESIGN AND PROGRAMMING	Eng	5

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SECOND SEMESTER			
CODE	COURSE	LANG.	ECTS
095946	ADVANCED ALGORITHMS AND PARALLEL PROGRAMMING	Eng	5
096129	ADVANCED AND MULTIVARIABLE CONTROL	Eng	10
088949	ADVANCED COMPUTER ARCHITECTURES	Eng	5
093062	AUTOMATION AND CONTROL IN VEHICLES	Eng	5
090916	AUTOMATION OF ENERGY SYSTEMS	Eng	5
096281	BIOMEDICAL SIGNAL PROCESSING AND MEDICAL IMAGES - BIOE 440-421	Eng	10
091079	BUSINESS INFORMATION SYSTEMS	Eng	10
091023	BUSINESS INFORMATION SYSTEMS 1	Eng	5
090874	BUSINESS INFORMATION SYSTEMS 2	Eng	5
090957	CODE TRANSFORMATION AND OPTIMIZATION	Eng	5
090958	COMPUTER GRAPHICS	Eng	5
089165	COMPUTER SECURITY	Eng	5
095898	COMPUTING INFRASTRUCTURES	Eng	5
095947	CRYPTOGRAPHY AND ARCHITECTURES FOR COMPUTER SECURITY	Eng	5
089167	DATA MINING AND TEXT MINING	Eng	5
090955	DEPENDABLE SYSTEMS	Eng	5
095942	DIGITAL SYSTEMS DESIGN METHODOLOGIES	Eng	10
095941	DIGITAL SYSTEMS DESIGN METHODOLOGIES 1	Eng	5
095940	DIGITAL SYSTEMS DESIGN METHODOLOGIES 2	Eng	5
097688	ECONOMICS AND COMPUTATION	Eng	5
088882	FORMAL METHODS FOR CONCURRENT AND REAL-TIME SYSTEMS	Eng	5
093735	GRAPH OPTIMIZATION	Eng	5
089185	HIGH PERFORMANCE PROCESSORS AND SYSTEMS (UIC 569	Eng	5
089318	HYPERMEDIA APPLICATIONS (WEB AND MULTIMEDIA)	Eng	5
089073	INTERNET OF THINGS	Eng	5
089012	KNOWLEDGE ENGINEERING	Eng	5
097683	MACHINE LEARNING	Eng	5
051587	MODEL IDENTIFICATION AND DATA ANALYSIS	Eng	10
090037	MODEL IDENTIFICATION AND DATA ANALYSIS 1ST MODULE	Eng	5
093206	MULTIDISCIPLINARY PROJECT	Eng	5
089043	MULTIMEDIA INTERNET	Eng	10
091036	MULTIMEDIA INTERNET APPLICATIONS	Eng	5
090951	PHILOSOPHICAL ISSUES OF COMPUTER SCIENCE	Eng	5
095948	PROCESS AND SERVICE DESIGN	Eng	5
090915	PRODUCTION SYSTEMS CONTROL	Eng	5
089013	ROBOTICS	Eng	5
093217	ROBOTICS AND DESIGN	Eng	5
097484	SIMULATION TECHNIQUES AND TOOLS	Eng	5
096260	TECHNOLOGIES FOR SENSORS AND CLINICAL INSTRUMENTATION	Eng	10
089181	THEORETICAL COMPUTER SCIENCE	Eng	5
091034	WIRELESS INTERNET	Eng	5

WINTER SEMESTER			
DEPT.	CODE - COURSE	LANG.	ECT S
35361500	50147 - Applications of industrial Information Technology	Ger	6
35351200	50276 - Strength and Fatigue	Ger	6
35371400	50384 - Continuum Dynamics	Ger	6
35351100	50572 - Simulation of Mechatronical Systems	Ger	6
35351200	50549 - Rotor Dynamics	Ger	6
35351300	50315 - Gear Technologies	Ger	6
35361700	50300 - Functional Components of Mikrotechnology I	Ger	6
35311100	50641 - Wind Energy - Fundamentals	Ger	6
35311100	50590 - Fluidflowmaschine - Components	Ger	6
35314100	50006 - Fundamentals of Combustion	Ger	6
35341500	50613 - Turbomachinery II - Aerodynamics of Turbomachinery	Ger	6
35341500	50403 - Basics of Aeroengines	Ger	6
35314100	50006 - Fundamentals of Combustion	Ger	6
35331100	50027 - Fluid Dynamics in Combustion Engines	Ger	6
35331100	50026 - Turbochargers	Eng	6
35331100	50630 - Internal Combustion Engines 2	Ger	6
35371200	50528 - Project "Simulation of tribological contacts"	Ger	6
35371400	50465 - Nonlinear and Chaotic Oscillations	Eng	6
35341400	50287 - Flight Control	Eng	6
35365300	50055 - Total Supplier Management	Eng	6
35365300	50056 - Einführung in die Automobilindustrie	Eng	6
35321200	50142 - Project Psychophysiology	Eng	6
35371100	50329 - Fundamentals of Continuum Theory I	Eng	6

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SPRING SEMESTER			
DEPT.	CODE - COURSE	LANG.	ECT S
35351200	50170 - Design against Stress and Vibrations	Ger	6
35351300	50388 - Cost Management and Law in Product Development	Ger	6
35351400	50232 - Elements of Mechatronics	Ger	6
35351200	50158 - Balancing Techniques	Ger	6
35371400	50515 - Project Multi-Body Dynamics	Ger	6
35351200	50170 - Design against Stress and Vibrations	Ger	6
35361700	50632 - Micro- and Nanotechnology	Ger	6
35361100	50301 - Functional Components of Mikrotechnology I	Ger	6
35311100	50589 - Fluidflowmaschine - Design	Ger	6
35311100	50297 - Fluid System Dynamics- Operation	Ger	6
35314100	50007 - Combustion dynamics	Ger	6
35311700	50067 - Combustion kinetics	Eng	6
35341500	50381 - Design of Turbo Machinery	Ger	6
35341500	50404 - Specialization Aeroengines	Ger	6
35341500	50612 - Basics of Turbomachinery	Ger	6
35331100	50614 - Thermodynamics in Combustion Engines	Ger	6
35331100	50629 - Internal Combustion Engines 1	Ger	6
35361500	50327 - Basic Principles of industrial Information Technology	Ger	6
35361100	50172 - Bearbeitungssystem Werkzeugmaschine II	Ger	6
35314100	50011 - Project in thermo-fluid dynamics	Ger	6
35351200	50509 - Engineering Design, Structure and Rotor Dynamics Project	Ger	6
35371200	50525 - Project Friction Physics	Ger	6
35331900	50458 - Multi-agent transport simulation	Eng	6
35321200	50463 - Project Neuroergonomics	Eng	6
35371100	50330 - Fundamentals of Continuum Theory II	Eng	6

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BOTH SEMESTERS			
DEPT.	CODE-COURSE	LANG.	ECTS
35351100	50364 - Integrative Product Development	Ger	6
35351300	50459 - Sustainable Product Engineering	Ger	6
35361300	50020 - Datenanalyse bei cyber-physischen Systemen	Ger	6
35361400	50160 - Automation Engineering	Ger	6
35361100	50494 - Production Technology	Ger	6
35361200	50457 - Assembly Technology	Ger	6
35374100	50002 - Project Modelling lightweight structures	Ger	6
35371300	50022 - Experimental Practice in Mechanics	Ger	6
35331100	50018 - Project Power Train Systems	Ger	6
35361500	50530 - Project Virtual Product Creation	Ger	6
35351100	50521 - Product Development Project	Ger	6
35361300	50537 - Quality Management Project	Ger	6
35361400	50161 - Project automation engineering	Ger	6
35351300	50510 - Project Machinery System Design	Eng	6
35311100	50299 - Fluid System Dynamics - Project	Ger	6
35361200	50496 - Production Technological Project	Ger	6
35351400	50500 - Project actuators and sensors / master	Ger	6
35351600	50514 - Project Medical Device Technology	Ger	6
35371100	50527 - Project Simulationtools and their application	Eng	6
35311100	50068 - Flow Measurement Methods	Eng	6