

Examples of possible study paths

Example 1

Semester	Year 1 – Courses	ECTS credits	Area
1	Functional Analysis for Engineers	5	MA
1	Algorithms of Numerical Linear Algebra	7,5	MA
1	Practical parallel algorithms with MPI	5	CS
1	Pattern Recognition	5	TAF
1	Advanced Programming Techniques	7,5	CS
Total		30	
Semester	Year 1 – Courses	ECTS credits	Area
2	Optimization for Engineers	7,5	MA
2	Seminar	5	
2	Programming Techniques for Supercomputers	7,5	CS
2	Visual Computing in Medicine	5	TAF
2	Deep Learning	5	TAF
Total		30	
Semester	Year 2 – Courses	ECTS credits	Area
3	Operating Systems	6	
3	Processor Architecture	6	CS
3	Multiprocessors Architecture	6	CS
3	Compilers for High-Performance Computers	6	CS
3	Supercomputing for Challenging Applications	6	TAF
Total		30	
Semester	Year 2	ECTS credits	
4	Master Thesis	30	
Total		30	

Example 2

Semester	Year 1 – Courses	ECTS credits	Area
1	Parallel computing	5	CS
1	Advanced methods for scientific computing	5	CS
1	Numerical linear algebra	5	MA
1	Numerical methods for partial differential equations	5	MA
1	Streaming data analytics	5	CS
1 and 2	Elective courses from Math/Phys table	10	MA/PHYS
Total		30	
Semester	Year 1 – Courses	ECTS credits	Area
2	Quantum physics	5	MA/PHYS
2	Computing infrastructures	5	CS
2	Software engineering for HPC	5	MA
2	Advanced computer architectures	5	CS
2	Applied statistics	5	MA
1 and 2	Elective courses from Math/Phys table	10	MA/PHYS
Total		30	
Semester	Year 2 – Courses	ECTS credits	Area
3	GPU programming	6	CS
3	FPGA and Quantum Computing	6	
3	Seminars (Scientific Applications)	6	TAF
3	Transversal Skills	6	TS
3	Artificial Intelligence/machine learning	6	TS
3	Big data analytics (HPDA)	6	CS
Total		30	
Semester	Year 2	ECTS credits	
4	Master Thesis	30	
Total		30	

Example 3

Semester	Year 1 – Courses	ECTS credits
1	Operating Systems	5
1	Pattern Recognition	5
1	Programming Techniques for Supercomputers	7,5
1	Advanced Programming Techniques	7,5
1	Algorithms of Numerical Linear Algebra (optional)	7,5
1	Computer Architecture	5
Total		30
Semester	Year 1 – Courses	ECTS credits
2	Architecture of Supercomputers	5
2	Software Architecture	5
2	Seminar (optional)	5
2	Deep Learning	5
2	Optimisation for Engineers	7,5
2	Visual Computing in Medicine	5
Total		30
Semester	Year 2 – Courses	ECTS credits
3	Big data analytics (HPDA)	6
3	Artificial Intelligence/machine learning	6
3	GPU programming	6
3	FPGA and Quantum Computing	6
3	Seminars (Scientific Applications)	6
3	Transversal Skills (optional)	6
Total		30
Semester	Year 2	ECTS credits
4	Master Thesis	30
Total		30
Optional courses		
3	Functional Analysis for Engineers	5
3	Advanced Programming Techniques	7,5
3	Programming Techniques for Supercomputers	7,5
3	Architecture of Supercomputers	5