Annex (PhD) – List of Modules in Clusters

(Cluster revised in Semester 1, AY2017/18; applicable to current PhD CS students)

1. Algorithms and Theory

CS5215 Constraint Programming
CS5230 Computational Complexity
CS5234 Combinatorial and Graph Algorithms
CS5236 Advanced Automata Theory
CS5237 Computational Geometry and Applications
CS5238 Advanced Combinatorial Methods in Bioinformatics
CS5330 Randomized Algorithms
CS6234 Advanced Algorithms
CS6283 Topics in Computer Science: Computational Social Science
CS6283 Topics in Computer Science: Logic in AI (wef August 2018)
CS6285 Topics in Computer Science: Pseudorandomness


CS5222 Advanced Computer Architecture
CS5223 Distributed Systems
CS5224 Cloud Computing
CS5229 Advanced Computer Networks
CS5231 Systems Security
CS5233 Simulation and Modelling Techniques
CS5239 Computer System Performance Analysis
CS5248 Systems Support for Continuous Media
CS5250 Advanced Operating Systems
CS5272 Embedded Software Design
CS5321 Network Security
CS5322 Database Security
CS5331 Web Security
CS5332 Biometric Authentication
CS5422 Wireless Networking
CS5425 Big Data Systems for Data Science
CS5439 Software Security
CS6204 Advanced Topics in Networking
CS6213 Topics in Distributed Computing
CS6230 Topics in Information Security
CS6280 Topics in Computer Science: Datacentre Software Dynamics
CS6282 Topics in Computer Science: Analytical Performance Modeling for Computer Systems
CS6211 Analytical Performance Modeling for Computer Systems
CS6231 Topics in System Security
CS6284 Topics in Computer Science: Big Data Meets New Hardware

3. Knowledge Systems: Artificial Intelligence, Computational Biology, Database

CS5215 Constraint Programming
CS5228 Knowledge Discovery and Data Mining
CS5233 Simulation and Modelling Techniques
CS5238 Advanced Combinatorial Methods in Bioinformatics
CS5242 Neural Networks and Deep Learning
CS5246 Text Mining
CS5339 Theory and Algorithms for Machine Learning
CS5340 Uncertainty Modelling in AI
CS5344 Big-Data Analytics Technology  
CS5421 Database Applications Design and Tuning  
CS5424 Distributed Databases  
CS5425 Big Data Systems for Data Science  
CS5446 AI Planning and Decision Making  
CS6203 Advanced Topics in Database Systems  
CS6207 Advanced Natural Language Processing  
CS6208 Advanced Topics in Artificial Intelligence  
CS6216 Advanced Topics in Machine Learning  
CS6220 Advanced Topics in Data Mining  
CS6222 Topics in Computational Biology  
CS6244 Robot Motion Planning and Control  
CS6281 Topics in Computer Science: User Generated Content Analyses using Automated Discourse Processing  
CS6281 Topics in Computer Science: Human-Centric AI (wef Jan 2018)  
CS6284 Topics in Computer Science: Big Data Meets New Hardware


CS5237 Computational Geometry and Applications  
CS5240 Theoretical Foundations in Multimedia  
CS5241 Speech Processing  
CS5242 Neural Networks and Deep Learning  
CS5246 Text Mining  
CS5248 Systems Support for Continuous Media  
CS5332 Biometric Authentication  
CS5346 Information Visualisation  
CS5343 Computational Photography  
CS5344 Advanced Computer Animation  
CS6206 Advanced Topics in Human-Computer Interaction  
CS6207 Advanced Natural Language Processing  
CS6212 Topics in Media  
CS6240 Multimedia Analysis  
CS6241 Advanced Topics in Computer Graphics

5. Programming Language and Software Engineering

CS5214 Design of Optimising Compilers  
CS5215 Constraint Programming  
CS5218 Principles of Program Analysis  
CS5219 Automated Software Validation  
CS5232 Formal Specification and Design Techniques  
CS5272 Embedded Software Design  
CS5439 Software Security  
CS6202 Advanced Topics in Programming Languages  
CS6215 Advanced Topics in Program Analysis  
CS6880 Advanced Topics in Software Engineering