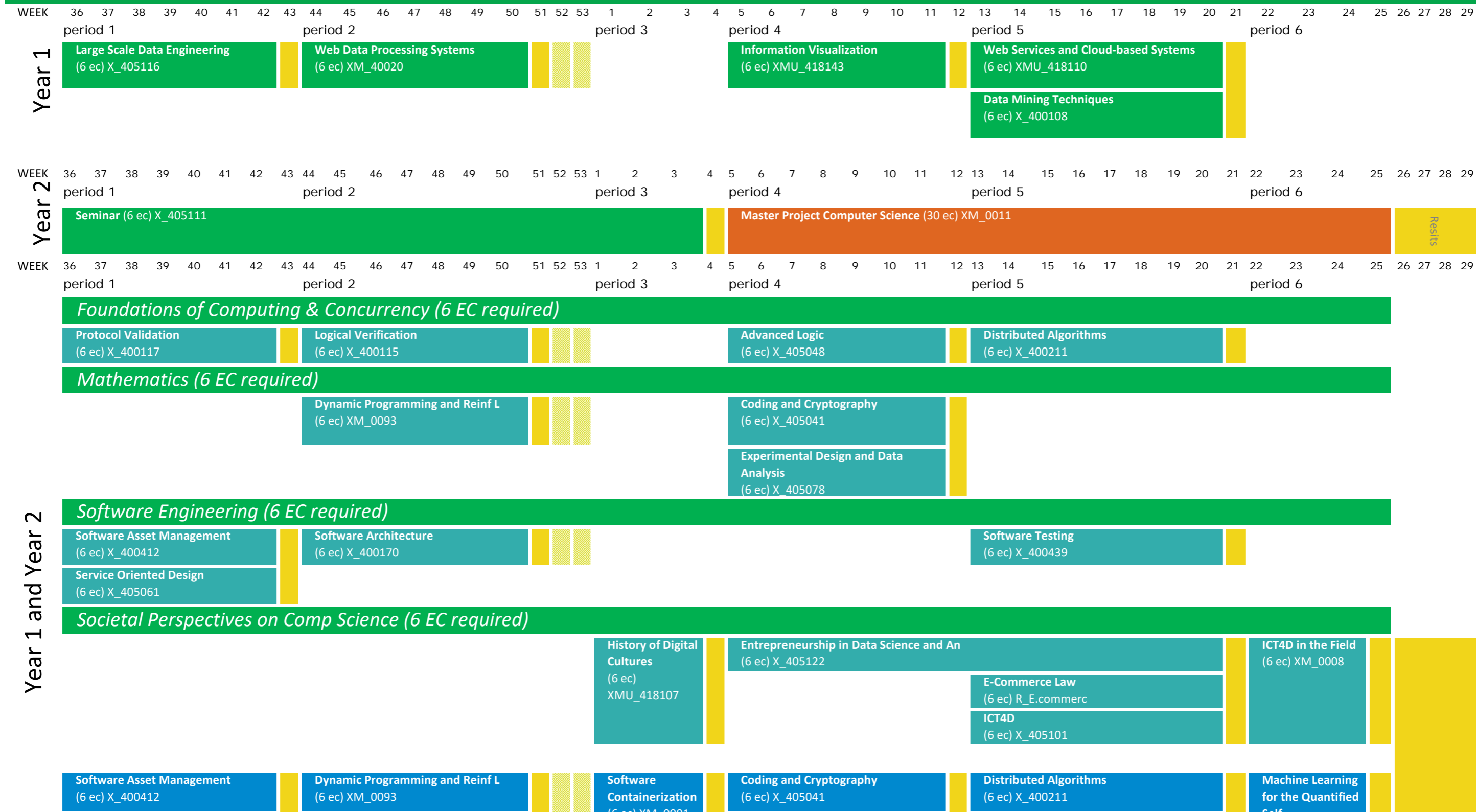


# Year Schedule MSc Computer Science 2020 - 2021

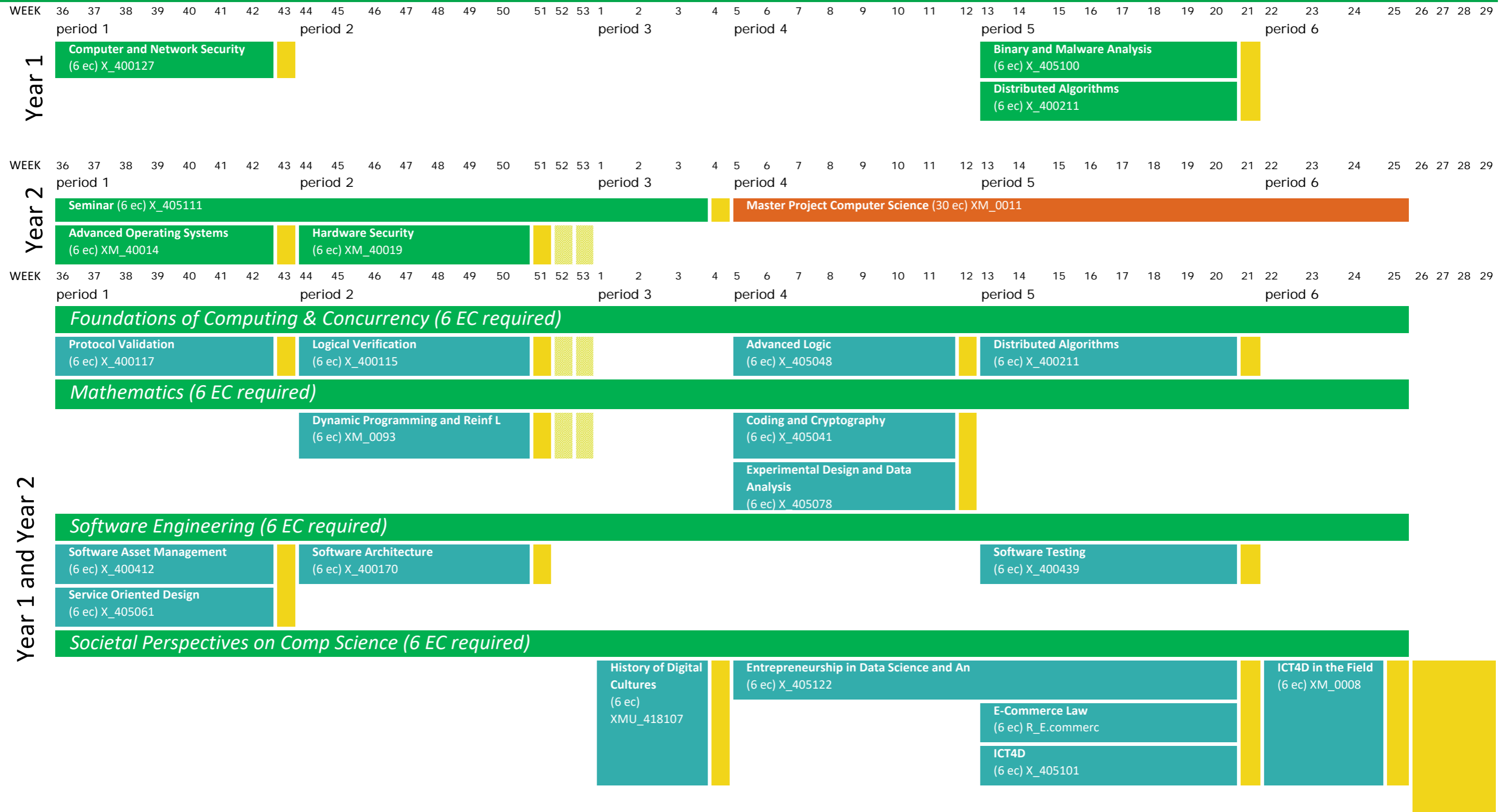
## Track Big Data Engineering



Year 1 and Year 2

Large Scale Data Engineering (6 ec) X_405116	Web Data Processing Systems (6 ec) XM_40020	(6 ec) XM_0091	Information Visualization (6 ec) XMU_418143	Web Services and Cloud-based Systems (6 ec) XMU_418110	Sen (6 ec) XM_40012
Protocol Validation (6 ec) X_400117	Software Architecture (6 ec) X_400170	Parallel Programming Practical (6 ec) X_400162	Advanced Logic (6 ec) X_405048	Software Testing (6 ec) X_400439	ICT4D in the Field (6 ec) XM_0008
Service Oriented Design (6 ec) X_405061	Logical Verification (6 ec) X_400115	High Performance Computing and Big Data (6 ec) XMU_40013	Experimental Design and Data Analysis (6 ec) X_405078	Data Mining Techniques (6 ec) X_400108	Project Systems Testing (6 ec) X_405124
Evolutionary Computing (6 ec) X_400111	Storage Systems (6 ec) XM_0092	Parallel System Architectures (6 ec) XMU_40015	Term Rewriting Systems (6 ec) XM_400121	ICT4D (6 ec) X_405101	
Computer and Network Security (6 ec) X_400127	Distributed Systems (6 ec) X_400130		Programming Multi-core and Many-core Sys. (6 ec) XMU_40018	Performance Engineering (6 ec) XMU_40016	
Knowledge Organization (6 ec) X_405065	Advanced Computer Networks (6 ec) X_405082			Binary and Malware Analysis (6 ec) X_405100	
Introduction to Computational Science (6 ec) XMU_418111	The Social Web (6 ec) X_405086				
Green Lab (6 ec) X_418158	Knowledge Engineering (6 ec) X_405099				
Advanced Operating Systems (6 ec) XM_40014	Performance of Networked Systems (6 ec) X_405105				
Programming Large-scale Parallel Systems (6 ec) XM_40017	Hardware Security (6 ec) XM_40019				
	Concurrency Theory (6 ec) XMU_0012				
Lambda Calculus (6 ec) XMU_418108					
Industrial Internship (6 ec) XM_405080					
Individual Systems Practical (6 ec) XM_405088					
					Resits

## Track Computer Systems Security



Year 1 and Year 2

Software Asset Management (6 ec) X_400412	Dynamic Programming and Reinf L (6 ec) XM_0093	Software Containerization (6 ec) XM_0091	Information Visualization (6 ec) XMU_418143	Web Services and Cloud-based Systems (6 ec) XMU_418110	ICT4D in the Field (6 ec) XM_0008
Large Scale Data Engineering (6 ec) X_405116	Web Data Processing Systems (6 ec) XM_40020		Experimental Design and Data Analysis (6 ec) X_405078	Software Testing (6 ec) X_400439	
Protocol Validation (6 ec) X_400117	Software Architecture (6 ec) X_400170	Parallel Programming Practical (6 ec) X_400162	Programming Multi-core and Many-core Sys. (6 ec) XMU_40018	Data Mining Techniques (6 ec) X_400108	Project Systems Testing (6 ec) X_405124
Service Oriented Design (6 ec) X_405061	Logical Verification (6 ec) X_400115		Advanced Logic (6 ec) X_405048	Binary and Malware Analysis (6 ec) X_405100	
Evolutionary Computing (6 ec) X_400111	Storage Systems (6 ec) XM_0092	High Performance Computing and Big Data (6 ec) XMU_40013	Term Rewriting Systems (6 ec) XM_400121	ICT4D (6 ec) X_405101	Machine Learning for the Quantified Self (6 ec) XM_40012
Computer and Network Security (6 ec) X_400127	Distributed Systems (6 ec) X_400130	Parallel System Architectures (6 ec) XMU_40015	Coding and Cryptography (6 ec) X_405041	Distributed Algorithms (6 ec) X_400211	
Knowledge Organization (6 ec) X_405065	Advanced Computer Networks (6 ec) X_405082			Performance Engineering (6 ec) XMU_40016	
Introduction to Computational Science (6 ec) XMU_418111	The Social Web (6 ec) X_405086				
Green Lab (6 ec) X_418158	Knowledge Engineering (6 ec) X_405099				
Advanced Operating Systems (6 ec) XM_40014	Performance of Networked Systems (6 ec) X_405105				
Programming Large-scale Parallel Systems (6 ec) XM_40017	Hardware Security (6 ec) XM_40019				
	Concurrency Theory (6 ec) XMU_0012				
Lambda Calculus (6 ec) XMU_418108					
Industrial Internship (6 ec) XM_405080					
Individual Systems Practical (6 ec) XM_405088					
Resits					

# Track Foundations of Computing and Concurrency

WEEK 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

period 1 period 2 period 3 period 4 period 5 period 6

Year 1

**Protocol Validation** (6 ec) X\_400117

**Logical Verification** (6 ec) X\_400115

**Term Rewriting Systems** (6 ec) XM\_400121

**Advanced Logic** (6 ec) X\_405048

**Distributed Algorithms** (6 ec) X\_400211

WEEK 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

period 1 period 2 period 3 period 4 period 5 period 6

Year 2

**Seminar** (6 ec) X\_405111

**Master Project Computer Science** (30 ec) XM\_0011

Resits

WEEK 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

period 1 period 2 period 3 period 4 period 5 period 6

Year 1 and Year 2

## Mathematics (6 EC required)

**Dynamic Programming and Reinf L** (6 ec) XM\_0093

**Coding and Cryptography** (6 ec) X\_405041

**Experimental Design and Data Analysis** (6 ec) X\_405078

## Programming (6 EC required)

**Individual Systems Practical** (6 ec) XM\_405088

**Programming Large-scale Parallel Systems** (6 ec) XM\_40017

**Advanced Computer Networks** (6 ec) X\_405082

**Parallel Programming Practical** (6 ec) X\_400162

**Programming Multi-core and Many-core Syg** (6 ec) XMU\_40018

**Project Systems Testing** (6 ec) X\_405124

**Advanced Operating Systems** (6 ec) XM\_40014

## Software Engineering (6 EC required)

**Software Asset Management** (6 ec) X\_400412

**Software Architecture** (6 ec) X\_400170

**Software Testing** (6 ec) X\_400439

**Service Oriented Design** (6 ec) X\_405061

## Societal Perspectives on Comp Science (6 EC required)

**History of Digital Cultures** (6 ec) XMU\_418107

**Entrepreneurship in Data Science and An** (6 ec) X\_405122

**E-Commerce Law** (6 ec) R\_E.commerc

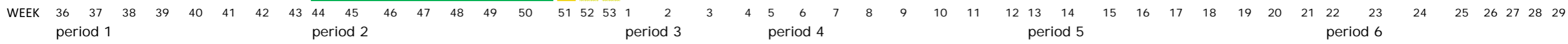
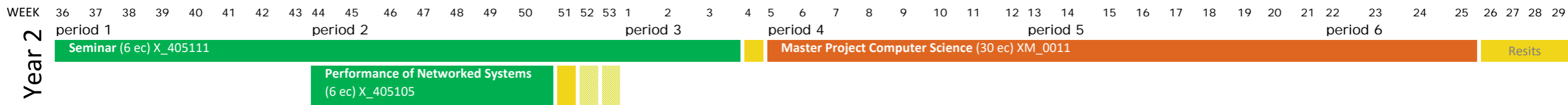
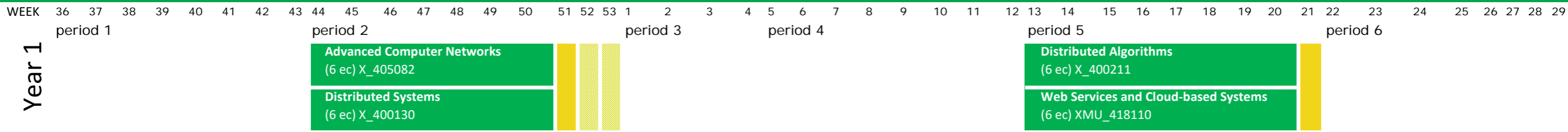
**ICT4D** (6 ec) X\_405101

**ICT4D in the Field** (6 ec) XM\_0008

Year 1 and Year 2

Software Asset Management (6 ec) X_400412	Advanced Computer Networks (6 ec) X_405082	Software Containerization (6 ec) XM_0091	Advanced Logic (6 ec) X_405048	Software Testing (6 ec) X_400439	ICT4D in the Field (6 ec) XM_0008	Resits	
Large Scale Data Engineering (6 ec) X_405116	Dynamic Programming and Reinf L (6 ec) XM_0093	Parallel Programming Practical (6 ec) X_400162	Coding and Cryptography (6 ec) X_405041	Distributed Algorithms (6 ec) X_400211	Project Systems Testing (6 ec) X_405124		
Protocol Validation (6 ec) X_400117	Software Architecture (6 ec) X_400170	High Performance Computing and Big Data (6 ec) XMU_40013	Term Rewriting Systems (6 ec) XM_400121	ICT4D (6 ec) X_405101	Machine Learning for the Quantified Self (6 ec) XM_40012		
Service Oriented Design (6 ec) X_405061	Logical Verification (6 ec) X_400115	Parallel System Architectures (6 ec) XMU_40015	Experimental Design and Data Analysis (6 ec) X_405078	Binary and Malware Analysis (6 ec) X_405100			
Evolutionary Computing (6 ec) X_400111	Distributed Systems (6 ec) X_400130		Programming Multi-core and Many-core Sys. (6 ec) XMU_40018	Web Services and Cloud-based Systems (6 ec) XMU_418110			
Computer and Network Security (6 ec) X_400127	The Social Web (6 ec) X_405086		Information Visualization (6 ec) XMU_418143	Performance Engineering (6 ec) XMU_40016			
Knowledge Organization (6 ec) X_405065	Knowledge Engineering (6 ec) X_405099						
Introduction to Computational Science (6 ec) XMU_418111	Performance of Networked Systems (6 ec) X_405105						
Green Lab (6 ec) X_418158	Hardware Security (6 ec) XM_40019						
Advanced Operating Systems (6 ec) XM_40014	Web Data Processing Systems (6 ec) XM_40020						
Programming Large-scale Parallel Systems (6 ec) XM_40017	Concurrency Theory (6 ec) XMU_0012						
Lambda Calculus (6 ec) XMU_418108							
Industrial Internship (6 ec) XM_405080							
Individual Systems Practical (6 ec) XM_405088							

# Track Internet and Web Technology

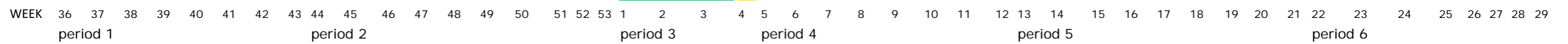
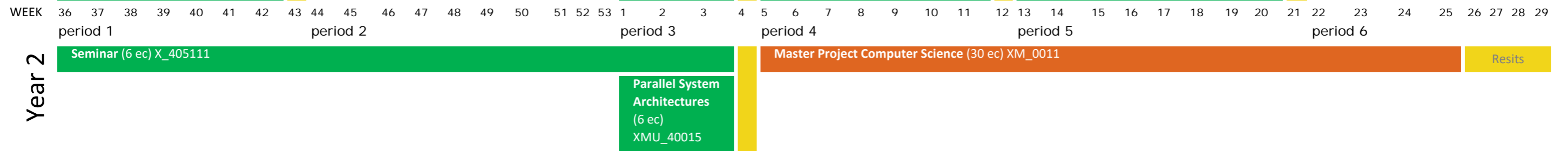
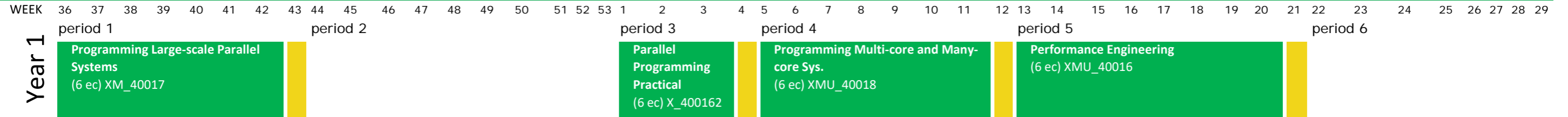


Year 1 and Year 2

Software Asset Management (6 ec) X_400412	Distributed Systems (6 ec) X_400130	Software Containerization (6 ec) XM_0091	Advanced Logic (6 ec) X_405048	Web Services and Cloud-based Systems (6 ec) XMU_418110	ICT4D in the Field (6 ec) XM_0008
Large Scale Data Engineering (6 ec) X_405116	Dynamic Programming and Reinf L (6 ec) XM_0093	Parallel Programming Practical (6 ec) X_400162	Coding and Cryptography (6 ec) X_405041	Software Testing (6 ec) X_400439	Project Systems Testing (6 ec) X_405124
Protocol Validation (6 ec) X_400117	Software Architecture (6 ec) X_400170	High Performance Computing and Big Data (6 ec) XMU_40013	Term Rewriting Systems (6 ec) XM_400121	Data Mining Techniques (6 ec) X_400108	Machine Learning for the Quantified Self (6 ec) XM_40012
Service Oriented Design (6 ec) X_405061	Advanced Computer Networks (6 ec) X_405082	Parallel System Architectures (6 ec) XMU_40015	Experimental Design and Data Analysis (6 ec) X_405078	Binary and Malware Analysis (6 ec) X_405100	
Evolutionary Computing (6 ec) X_400111	Performance of Networked Systems (6 ec) X_405105		Programming Multi-core and Many-core Sys. (6 ec) XMU_40018	ICT4D (6 ec) X_405101	
Computer and Network Security (6 ec) X_400127	Logical Verification (6 ec) X_400115		Information Visualization (6 ec) XMU_418143	Distributed Algorithms (6 ec) X_400211	
Knowledge Organization (6 ec) X_405065	Storage Systems (6 ec) XM_0092			Performance Engineering (6 ec) XMU_40016	
Introduction to Computational Science (6 ec) XMU_418111	The Social Web (6 ec) X_405086				
Green Lab (6 ec) X_418158	Knowledge Engineering (6 ec) X_405099				
Advanced Operating Systems (6 ec) XM_40014	Hardware Security (6 ec) XM_40019				
Programming Large-scale Parallel Systems	Web Data Processing Systems (6 ec) XM_40020				
	Concurrency Theory (6 ec) XMU_0012				
Lambda Calculus (6 ec) XMU_418108					
Industrial Internship (6 ec) XM_405080					
Individual Systems Practical (6 ec) XM_405088					
Resits					



## Track Parallel Computing Systems



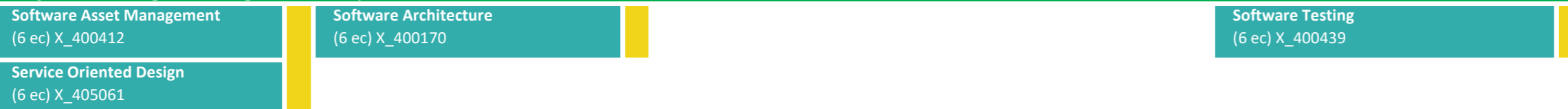
### Foundations of Computing & Concurrency (6 EC required)



### Mathematics (6 EC required)



### Software Engineering (6 EC required)



### Societal Perspectives on Comp Science (6 EC required)



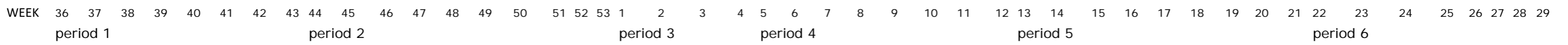
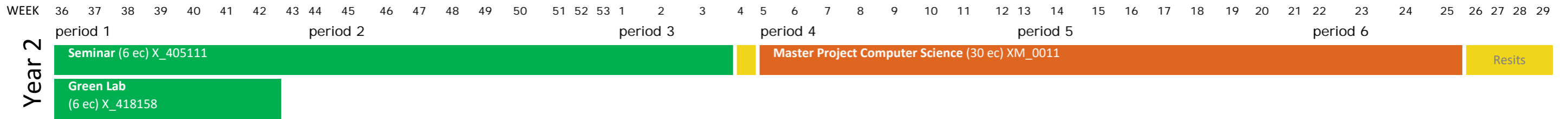
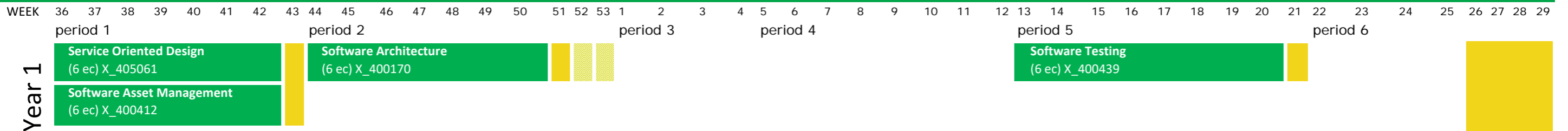
Year 1 and Year 2

Year 1 and Year 2

Software Asset Management (6 ec) X_400412	Distributed Systems (6 ec) X_400130	Software Containerization (6 ec) XM_0091	Advanced Logic (6 ec) X_405048	Web Services and Cloud-based Systems (6 ec) XMU_418110	ICT4D in the Field (6 ec) XM_0008
Large Scale Data Engineering (6 ec) X_405116	Dynamic Programming and Reinf L (6 ec) XM_0093	Parallel Programming Practical (6 ec) X_400162	Coding and Cryptography (6 ec) X_405041	Software Testing (6 ec) X_400439	Project Systems Testing (6 ec) X_405124
Protocol Validation (6 ec) X_400117	Software Architecture (6 ec) X_400170	High Performance Computing and Big Data (6 ec) XMU_40013	Term Rewriting Systems (6 ec) XM_400121	Data Mining Techniques (6 ec) X_400108	Machine Learning for the Quantified Self (6 ec) XM_40012
Service Oriented Design (6 ec) X_405061	Advanced Computer Networks (6 ec) X_405082	Parallel System Architectures (6 ec) XMU_40015	Experimental Design and Data Analysis (6 ec) X_405078	Binary and Malware Analysis (6 ec) X_405100	
Evolutionary Computing (6 ec) X_400111	Performance of Networked Systems (6 ec) X_405105		Programming Multi-core and Many-core Sys. (6 ec) XMU_40018	ICT4D (6 ec) X_405101	
Computer and Network Security (6 ec) X_400127	Logical Verification (6 ec) X_400115		Information Visualization (6 ec) XMU_418143	Distributed Algorithms (6 ec) X_400211	
Knowledge Organization (6 ec) X_405065	Storage Systems (6 ec) XM_0092			Performance Engineering (6 ec) XMU_40016	
Introduction to Computational Science (6 ec) XMU_418111	The Social Web (6 ec) X_405086				
Green Lab (6 ec) X_418158	Knowledge Engineering (6 ec) X_405099				
Advanced Operating Systems (6 ec) XM_40014	Hardware Security (6 ec) XM_40019				
Programming Large-scale Parallel Systems (6 ec) XM_40017	Web Data Processing Systems (6 ec) XM_40020				
	Concurrency Theory (6 ec) XMU_0012				
Lambda Calculus (6 ec) XMU_418108					
Industrial Internship (6 ec) XM_405080					
Individual Systems Practical (6 ec) XM_405088					

Resits

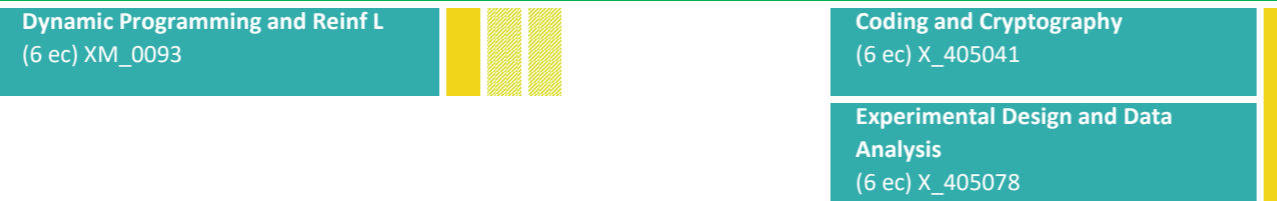
# Track Software Engineering and Green IT



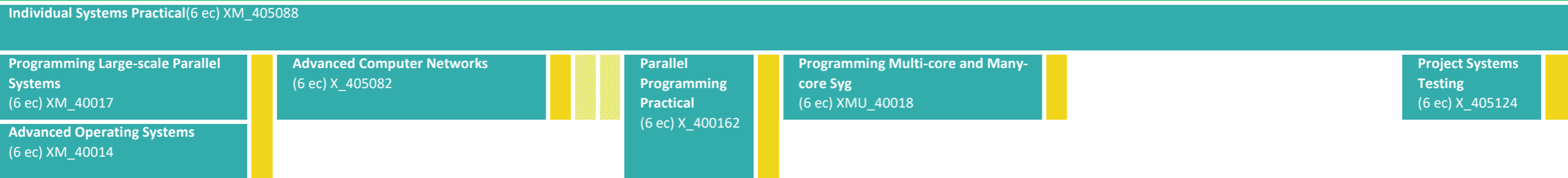
## Foundations of Computing & Concurrency (6 EC required)



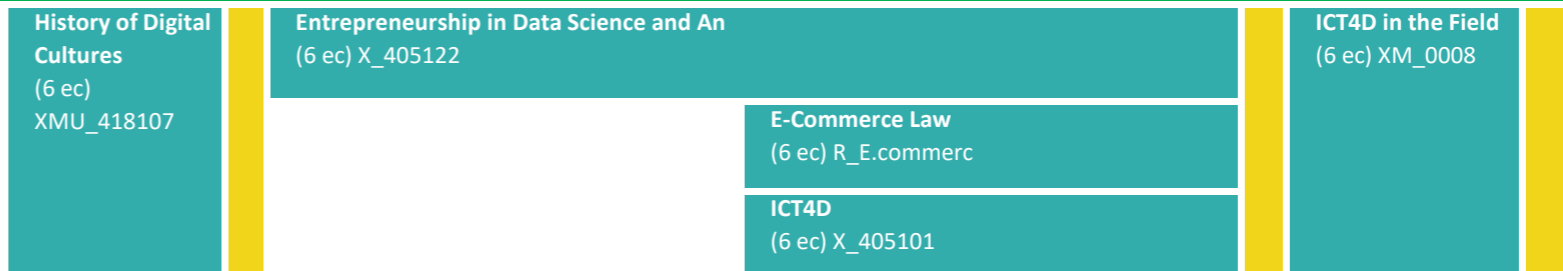
## Mathematics (6 EC required)



## Programming (6 EC required)

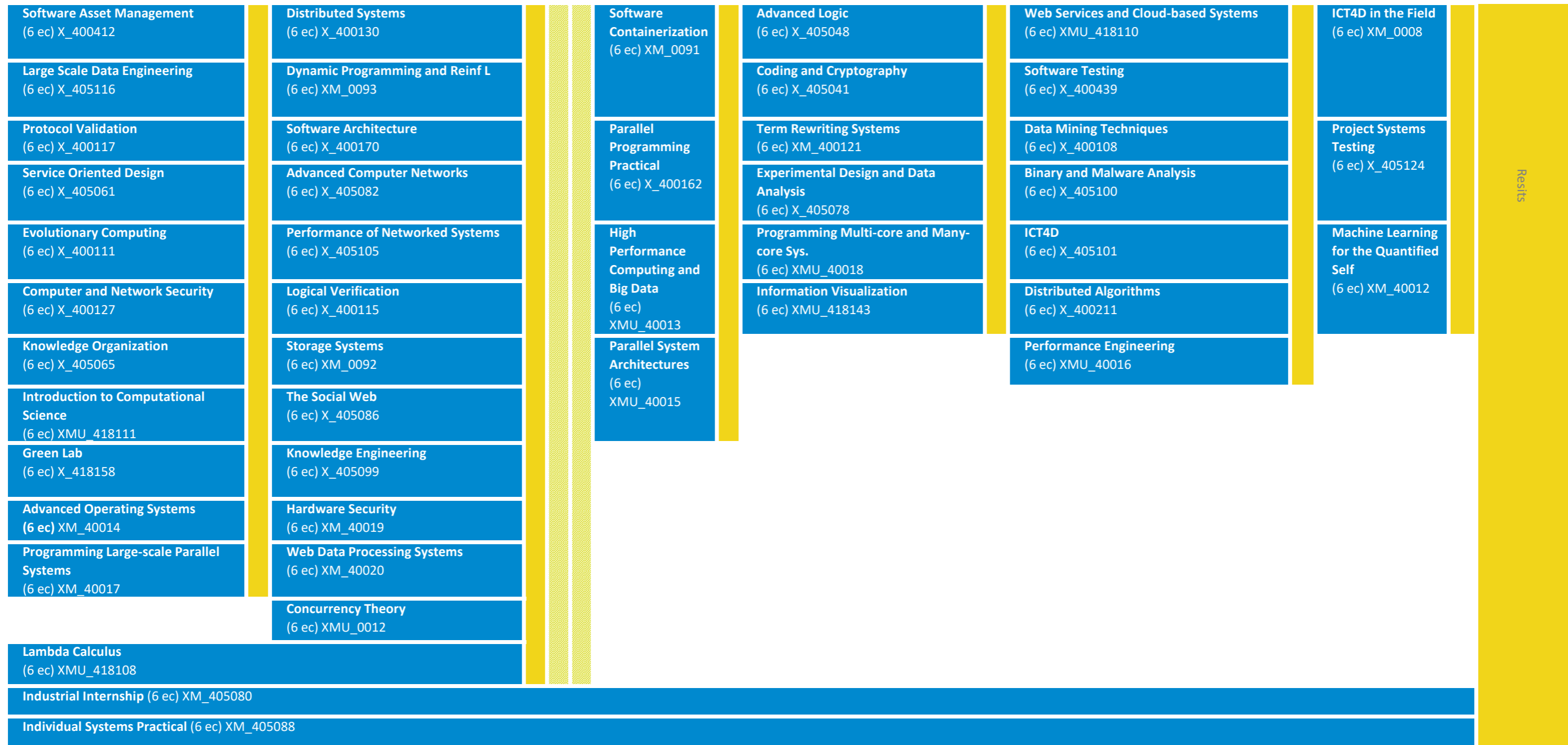


## Societal Perspectives on Comp Science (6 EC required)



Year 1 and Year 2

Year 1 and Year 2



Resits	P1	P2	P3	P4	P5	P6
Information Sciences	wk 1	wk 6/7/8	wk 13	wk 22	wk 26	wk 28
Natural Sciences & Mathematics	wk 1	wk 6/7/8	wk 13	wk 22	wk 26	wk 28
Health & Life Sciences	wk 1	wk 6/7/8	wk 13	wk 22	wk 26	wk 28
Earth, Ecological & Environmental Sciences	wk 1	wk 6/7/8	wk 13	wk 22	wk 26	wk 28