Computer Science and Engineering, M Sc in Engineering

300 credits

Civilingenjör i datateknik

6CDDD

Valid from: 2014 Spring semester

Determined by

Board of Studies for Computer Science
and Media Technology

Date determined

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
2 (30)

Entry requirements

Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
3 (30)

Curriculum

Semester 6 (Spring 2017)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD60	Interactive Systems	4	G1X	4	C
TDDD79	Professionalism for Engineers, part 2	1*	G1X	-	C
TDDD96	Software Engineering - Bachelor Project	15*	G2X	2/3	C
TSRT12	Automatic Control	6	G2X	1	C
Period 2					
TDDD79	Professionalism for Engineers, part 2	1*	G1X	-	C
TDDD96	Software Engineering - Bachelor Project	15*	G2X	2/4	C
TSKS10	Signals, Information and Communication	4	G2X	3	C

Semester 7 (Autumn 2017)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TANA21	Scientific Computing	6	G1X	3	C/E
TAMS22	Probability Theory and Bayesian Networks	6	A1X	2	E
TAMS24	Statistics, First Course	4	G2X	4	E
TAMS32	Stochastic Processes	6	A1X	1	E
TATA55	Abstract Algebra	6*	G2X	3	E
TBME04	Anatomy and Physiology	6	G2X	3	E
TBMI19	Medical Information Systems	6*	A1X	2	E
TBMT36	Biomedical Optics	6	A1X	1	E
TDDB84	Design Patterns	6	A1X	4	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TDDC34	Technical, Economic and Societal Evaluation of IT-products	6	A1X	3	E
TDDD04	Software Testing	6	A1X	2	E
TDDD08	Logic Programming	6	A1X	4	E
TDDD23	Design and Programming of Computer Games	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
4 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD53	Advanced Interaction Design	6	A1X	1	E
TDP024	Enterprise Systems	6	G2X	1	E
TDTS06	Computer Networks	6	G2X	1	E
TGTU91	Oral and Written Communication	6	G1X	2	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
TSBB08	Digital Image Processing	6	A1X	4	E
TSDT14	Signal Theory	6	A1X	1	E
TSFS09	Modelling and Control of Engines and Drivelines	6*	A1X	4	E
TSKS01	Digital Communication	6*	A1X	4	E
TSKS15	Detection and Estimation of Signals	6	A1X	2	E
TSRT62	Modelling and Simulation	6	A1X	3	E
TSTE12	Design of Digital Systems	6	A1X	3	E
TSTE86	Digital Integrated Circuits	6	A1X	2	E
Period 2					
TANA09	Numerical Algorithms in Computer Science	4	G2X	1	C/E
TATA55	Abstract Algebra	6*	G2X	3	E
TBME03	Biochemistry and Cell Biology	6	G2X	2	E
TBMI19	Medical Information Systems	6*	A1X	3	E
TBMT01	Biomedical Signal Processing	6	A1X	1	E
TDDC73	Interaction Programming	6	G2X	1	E
TDDD07	Real Time Systems	6	A1X	4	E
TDDD37	Database Technology	6	G2X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDD49	Programming in C# and .NET Framework	4	G2X	3	E
TDDD55	Compilers and Interpreters	4	G2X	1	E
TDDE01	Machine Learning	6	A1X	1	E
TDDE02	Software Entrepreneurship	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
5 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TDDI07	Distributed Embedded Software and Networks	4	G2X	1	E
TDEI19	Management Control	6	A1X	2	E
TDTS08	Advanced Computer Architecture	6	A1X	2	E
TEAE01	Industrial Economics, Basic Course	6	G1X	2	E
TEIM03	Intercultural Communication	4	G1X	4	E
TFMT13	Measurement Technology	4	G1X	1	E
TFYA39	Semiconductor Technology	6	A1X	3	E
TGTU04	Leadership	6	G2X	2	E
TGTU49	History of Technology	6	G1F	3	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TKMJ24	Environmental Engineering	6	G1X	3	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	E
TSBB09	Image Sensors	6	A1X	4	E
TSEK02	Radio Electronics	6	A1X	3	E
TSEK37	Analog CMOS Integrated Circuits	6	A1X	1	E
TSFS02	Vehicle Dynamics and Control	6	A1X	1	E
TSFS09	Modelling and Control of Engines and Drivelines	6*	A1X	3	E
TSIN02	Internetworking	6	A1N	1	E
TSKS01	Digital Communication	6*	A1X	4	E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
6 (30)

Specialisation: AI and Machine Learning

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDC17	Artificial Intelligence	6	G2X	3	C
TBMI19	Medical Information Systems	6*	A1X	2	E
TDDD08	Logic Programming	6	A1X	4	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
TSBB08	Digital Image Processing	6	A1X	4	E
Period 2					
TDDE01	Machine Learning	6	A1X	1	C
TBMI19	Medical Information Systems	6*	A1X	3	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E
TSRT78	Digital Signal Processing	6	A1X	2	E

Specialisation: Communication

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSDT14	Signal Theory	6	A1X	1	C
TSKS01	Digital Communication	6*	A1X	4	C
TSKS15	Detection and Estimation of Signals	6	A1X	2	C
TDTS06	Computer Networks	6	G2X	1	E
Period 2					
TSKS01	Digital Communication	6*	A1X	4	C
TSEK02	Radio Electronics	6	A1X	3	E
TSIN02	Internetworking	6	A1N	1	E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E
TSRT78	Digital Signal Processing	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
7 (30)

Specialisation: Computer Games Programming

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD23	Design and Programming of Computer Games	6	A1X	2	C
TDDC17	Artificial Intelligence	6	G2X	3	E
TDDD53	Advanced Interaction Design	6	A1X	1	E
Period 2					
TDDC73	Interaction Programming	6	G2X	1	C
TDDE02	Software Entrepreneurship	6	A1X	2	E

Specialisation: Computer Systems Architecture

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD04	Software Testing	6	A1X	2	E
TDTS06	Computer Networks	6	G2X	1	E
TSTE86	Digital Integrated Circuits	6	A1X	2	E
Period 2					
TDDD07	Real Time Systems	6	A1X	4	E
TDTS08	Advanced Computer Architecture	6	A1X	2	E
TSIT02	Computer Security	6	G2F	2	E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E

Specialisation: Electronics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSKS01	Digital Communication	6*	A1X	4	C
TSTE86	Digital Integrated Circuits	6	A1X	2	C
TSTE12	Design of Digital Systems	6	A1X	3	E
Period 2					
TSEK37	Analog CMOS Integrated Circuits	6	A1X	1	C
TSKS01	Digital Communication	6*	A1X	4	C
TSEK02	Radio Electronics	6	A1X	3	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
8 (30)

Specialisation: International Software Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD62	Internship	18*	A1X	-	C
TEAE01	Industrial Economics, Basic Course	6	G1X	2	C
Period 2					
TDDD62	Internship	18*	A1X	-	C
TDEI19	Management Control	6	A1X	2	E
TSIT02	Computer Security	6	G2F	2	E

Specialisation: Large Scale Software Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDB84	Design Patterns	6	A1X	4	E
TDDC34	Technical, Economic and Societal Evaluation of IT-products	6	A1X	3	E
TDDD04	Software Testing	6	A1X	2	E
Period 2					
TDDD37	Database Technology	6	G2X	1	E
TDDE02	Software Entrepreneurship	6	A1X	2	E

Specialisation: Medical Informatics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBME04	Anatomy and Physiology	6	G2X	3	C
TBMI19	Medical Information Systems	6*	A1X	2	C
TDDC17	Artificial Intelligence	6	G2X	3	E
TDDD53	Advanced Interaction Design	6	A1X	1	E
Period 2					
TBMI19	Medical Information Systems	6*	A1X	3	C
TBME03	Biochemistry and Cell Biology	6	G2X	2	E
TDDD37	Database Technology	6	G2X	1	E
TSIT02	Computer Security	6	G2F	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
9 (30)

Specialisation: Programming and Algorithms

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDB84	Design Patterns	6	A1X	4	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TDDD04	Software Testing	6	A1X	2	E
TDDD08	Logic Programming	6	A1X	4	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
Period 2					
TDDC90	Software Security	6	A1X	1	E
TDDD37	Database Technology	6	G2X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TSIT02	Computer Security	6	G2F	2	E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E

Specialisation: Secure Systems

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDB84	Design Patterns	6	A1X	4	C
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDTS06	Computer Networks	6	G2X	1	E
TSIT03	Cryptology	6	A1X	2	E
Period 2					
TDDC90	Software Security	6	A1X	1	C
TSIT02	Computer Security	6	G2F	2	C
TDDD30	Advanced Software Engineering	6	A1X	4	E
TDDD37	Database Technology	6	G2X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
10 (30)

Specialisation: Signal and Image Processing

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	C
TSBB08	Digital Image Processing	6	A1X	4	C
TSDT14	Signal Theory	6	A1X	1	C
Period 2					
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	C
TSBB09	Image Sensors	6	A1X	4	C
TSRT78	Digital Signal Processing	6	A1X	2	C

Specialisation: System-on-Chip

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSTE12	Design of Digital Systems	6	A1X	3	C
TSTE86	Digital Integrated Circuits	6	A1X	2	C
TDTS06	Computer Networks	6	G2X	1	E
TSKS01	Digital Communication	6*	A1X	4	E
Period 2					
TDTS08	Advanced Computer Architecture	6	A1X	2	C
TDDD07	Real Time Systems	6	A1X	4	E
TDDD55	Compilers and Interpreters	4	G2X	1	E
TFYA39	Semiconductor Technology	6	A1X	3	E
TSEK02	Radio Electronics	6	A1X	3	E
TSEK37	Analog CMOS Integrated Circuits	6	A1X	1	E
TSKS01	Digital Communication	6*	A1X	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
11 (30)

Specialisation: Systems Technology

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDC17	Artificial Intelligence	6	G2X	3	C
TSBB08	Digital Image Processing	6	A1X	4	E
TSKS15	Detection and Estimation of Signals	6	A1X	2	E
Period 2					
TDDD37	Database Technology	6	G2X	1	C
TDDD07	Real Time Systems	6	A1X	4	C/E
TDDD55	Compilers and Interpreters	4	G2X	1	C/E
TSKS11	Networks: Models, Algorithms and Applications	6	G2X	3	E

Semester 8 (Spring 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TANA15	Numerical Linear Algebra	6	A1X	1	E
TATA53	Linear Algebra, Honours Course	6*	G2X	-	E
TATA54	Number Theory	6*	G2X	-	E
TATA64	Graph Theory	6*	A1X	2	E
TBMI01	Medical Decision Support	6	A1X	4	E
TBMI03	Medical Information Models and Ontologies	6	A1X	4	E
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
TBMT02	Medical Imaging	6	A1F	3	E
TBMT09	Physiological Pressures and Flows	6	A1X	1	E
TBMT32	Perspectives on Biomedical Engineering	2*	G1X	3	E
TDDA69	Data and Program Structures	6*	G2X	3	E
TDDD17	Information Security, Second Course	6*	A1X	4	E
TDDD20	Design and Analysis of Algorithms	6	A1X	3	E
TDDD25	Distributed Systems	6	A1X	2	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD41	Data Mining - Clustering and Association Analysis	6	A1X	3	E
TDDD50	Green Computing	4	G2X	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
12 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TDDD57	Physical Interaction and Game Programming	6	A1X	1	E
TDDD75	Effect-Driven Development and Human-Centered Design of Interactive Systems	6	G2X	3	E
TDDD95	Algorithmic Problem Solving	6*	A1X	1	E
TDDD97	Web Programming	6	G2X	3	E
TDDE05	AI Robotics	6*	A1X	4	E
TDDE06	Large-Scale Software Development - Structures and Processes	6*	A1X	4	E
TDDE09	Natural Language Processing	6	A1X	2	E
TDTS07	System Design and Methodology	6	A1X	1	E
TDTS21	Advanced Networking	6*	A1X	1	E
TEIE88	Computer Law	4	G1X	1	E
TEIO20	Entrepreneurship and New Business Development	6*	G2X	4	E
TGTU01	Technology and Ethics	6	G1X	1	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TKMJ15	Environmental Management Strategies	6	G1F	3	E
TNM048	Information Visualisation	6	A1X	3	E
TSBB15	Computer Vision	12*	A1X	1	E
TSBK07	Computer Graphics	6*	A1X	4	E
TSBK08	Data Compression	6	A1X	2	E
TSEK06	VLSI Design	12*	A1X	4	E
TSEK38	Radio Frequency Transceiver Design	6	A1X	2	E
TSFS04	Electrical Drives	6	G2X	4	E
TSKS13	Wireless Communications	6	A1F	4	E
TSRT07	Industrial Control Systems	6	A1X	2	E
TSRT09	Control Theory	6	A1X	3	E
TSTE08	Analog and Discrete-Time Integrated Circuits	6	A1X	3	E
TSTE14	Analog Filters	6	A1X	2	E
Period 2					
TATA53	Linear Algebra, Honours Course	6*	G2X	-	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
13 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TATA54	Number Theory	6*	G2X	-	E
TATA64	Graph Theory	6*	A1X	2	E
TBME08	Biomedical Modeling and Simulation	6	A1X	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1X	1	E
TBMT32	Perspectives on Biomedical Engineering	2*	G1X	3	E
TDDA69	Data and Program Structures	6*	G2X	1	E
TDDC78	Programming of Parallel Computers - Methods and Tools	6	A1X	3	E
TDDD05	Component Based Software	6	A1X	1	E
TDDD14	Formal Languages and Automata Theory	6	G2X	2	E
TDDD17	Information Security, Second Course	6*	A1X	4	E
TDDD27	Advanced Web Programming	6	A1X	3	E
TDDD29	IT-Project Management	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDD48	Automated Planning	6	A1X	1	E
TDDD95	Algorithmic Problem Solving	6*	A1X	4	E
TDDE05	AI Robotics	6*	A1X	4	E
TDDE06	Large-Scale Software Development - Structures and Processes	6*	A1X	4	E
TDDE07	Bayesian Learning	6	A1X	2	E
TDDE31	Big Data Analytics	6	A1X	1	E
TDDE34	Software Verification	6	A1X	1	E
TDEI35	Strategy and Management Control	6	A1X	2	E
TDTS21	Advanced Networking	6*	A1X	1	E
TEAE13	Civil and Commercial Law	6	G1X	2	E
TEIE44	Intellectual Property Rights	4	G1X	1	E
TEIO20	Entrepreneurship and New Business Development	6*	G2X	4	E
TFYA19	Quantum Computers	6	A1X	4	E
TGTU76	Philosophy of Science	6	G1X	4	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
14 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TNM079	Modelling and Animation	6	A1X	2	E
TSBB15	Computer Vision	12*	A1X	3	E
TSBK02	Image and Audio Coding	6	A1X	4	E
TSBK07	Computer Graphics	6*	A1X	1	E
TSEK06	VLSI Design	12*	A1X	4	E
TSFS06	Diagnosis and Supervision	6	A1N	1	E
TSKS14	Multiple Antenna Communications	6	A1X	2	E
TSRT14	Sensor Fusion	6	A1X	2	E
TSTE06	Digital Filters	6	A1X	3	E
TSTE87	Application-Specific Integrated Circuits	6	A1X	2	E

Specialisation: AI and Machine Learning

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
TDDD20	Design and Analysis of Algorithms	6	A1X	3	E
TDDD41	Data Mining - Clustering and Association Analysis	6	A1X	3	E
TDDD95	Algorithmic Problem Solving	6*	A1X	1	E
TDDE05	AI Robotics	6*	A1X	4	E
TDDE09	Natural Language Processing	6	A1X	2	E
TSRT07	Industrial Control Systems	6	A1X	2	E
Period 2					
TDDD48	Automated Planning	6	A1X	1	E
TDDD95	Algorithmic Problem Solving	6*	A1X	4	E
TDDE05	AI Robotics	6*	A1X	4	E
TDDE07	Bayesian Learning	6	A1X	2	E
TDDE31	Big Data Analytics	6	A1X	1	E
TSFS06	Diagnosis and Supervision	6	A1N	1	E
TSRT14	Sensor Fusion	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
15 (30)

Specialisation: Communication

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDTS21	Advanced Networking	6*	A1X	1	E
TSBK08	Data Compression	6	A1X	2	E
TSEK38	Radio Frequency Transceiver Design	6	A1X	2	E
TSKS13	Wireless Communications	6	A1F	4	E
Period 2					
TDTS21	Advanced Networking	6*	A1X	1	E
TFYA19	Quantum Computers	6	A1X	4	E
TSBK02	Image and Audio Coding	6	A1X	4	E
TSKS14	Multiple Antenna Communications	6	A1X	2	E

Specialisation: Computer Games Programming

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD57	Physical Interaction and Game Programming	6	A1X	1	C
TSBK07	Computer Graphics	6*	A1X	4	C
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
Period 2					
TSBK07	Computer Graphics	6*	A1X	1	C
TNM079	Modelling and Animation	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
16 (30)

Specialisation: Computer Systems Architecture

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDA69	Data and Program Structures	6*	G2X	3	E
TDDD25	Distributed Systems	6	A1X	2	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD97	Web Programming	6	G2X	3	E
TDTS07	System Design and Methodology	6	A1X	1	E
TDTS21	Advanced Networking	6*	A1X	1	E
Period 2					
TDDA69	Data and Program Structures	6*	G2X	1	E
TDDC78	Programming of Parallel Computers - Methods and Tools	6	A1X	3	E
TDDD05	Component Based Software	6	A1X	1	E
TDDD14	Formal Languages and Automata Theory	6	G2X	2	E
TDDD27	Advanced Web Programming	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDE34	Software Verification	6	A1X	1	E
TDTS21	Advanced Networking	6*	A1X	1	E

Specialisation: Electronics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSTE08	Analog and Discrete-Time Integrated Circuits	6	A1X	3	C
TSEK06	VLSI Design	12*	A1X	4	E
TSEK38	Radio Frequency Transceiver Design	6	A1X	2	E
TSTE14	Analog Filters	6	A1X	2	E
TSTE93	Analog Circuits	6*	G2X	1	E
Period 2					
TSTE87	Application-Specific Integrated Circuits	6	A1X	2	C
TSEK06	VLSI Design	12*	A1X	4	E
TSTE06	Digital Filters	6	A1X	3	E
TSTE93	Analog Circuits	6*	G2X	1	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
17 (30)

Specialisation: Large Scale Software Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDE06	Large-Scale Software Development - Structures and Processes	6*	A1X	4	E
Period 2					
TDDD05	Component Based Software	6	A1X	1	E
TDDE06	Large-Scale Software Development - Structures and Processes	6*	A1X	4	E
TDDE34	Software Verification	6	A1X	1	E

Specialisation: Medical Informatics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI01	Medical Decision Support	6	A1X	4	E
TBMI03	Medical Information Models and Ontologies	6	A1X	4	E
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
TDDD17	Information Security, Second Course	6*	A1X	4	E
Period 2					
TBMT26	Technology in Intensive Care and Surgery	6	A1X	1	E
TDDD17	Information Security, Second Course	6*	A1X	4	E
TDDE31	Big Data Analytics	6	A1X	1	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
18 (30)

Specialisation: Programming and Algorithms

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDA69	Data and Program Structures	6*	G2X	3	E
TDDD20	Design and Analysis of Algorithms	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD41	Data Mining - Clustering and Association Analysis	6	A1X	3	E
TDDD95	Algorithmic Problem Solving	6*	A1X	1	E
TDDE09	Natural Language Processing	6	A1X	2	E
Period 2					
TDDA69	Data and Program Structures	6*	G2X	1	E
TDDC78	Programming of Parallel Computers - Methods and Tools	6	A1X	3	E
TDDD05	Component Based Software	6	A1X	1	E
TDDD14	Formal Languages and Automata Theory	6	G2X	2	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDD95	Algorithmic Problem Solving	6*	A1X	4	E
TDDE34	Software Verification	6	A1X	1	E

Specialisation: Secure Systems

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD17	Information Security, Second Course	6*	A1X	4	C
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD97	Web Programming	6	G2X	3	E
TDTS21	Advanced Networking	6*	A1X	1	E
Period 2					
TDDD17	Information Security, Second Course	6*	A1X	4	C
TDDD27	Advanced Web Programming	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDTS21	Advanced Networking	6*	A1X	1	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
19 (30)

Specialisation: Signal and Image Processing

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
TBMT02	Medical Imaging	6	A1F	3	E
TNM048	Information Visualisation	6	A1X	3	E
TSBB15	Computer Vision	12*	A1X	1	E
TSBK07	Computer Graphics	6*	A1X	4	E
TSBK08	Data Compression	6	A1X	2	E
Period 2					
TSBB15	Computer Vision	12*	A1X	3	E
TSBK02	Image and Audio Coding	6	A1X	4	E
TSBK07	Computer Graphics	6*	A1X	1	E
TSRT14	Sensor Fusion	6	A1X	2	E

Specialisation: System-on-Chip

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDTS07	System Design and Methodology	6	A1X	1	C
TSBK07	Computer Graphics	6*	A1X	4	E
TSEK06	VLSI Design	12*	A1X	4	E
TSTE08	Analog and Discrete-Time Integrated Circuits	6	A1X	3	E
Period 2					
TEIE44	Intellectual Property Rights	4	G1X	1	E
TSBK07	Computer Graphics	6*	A1X	1	E
TSEK06	VLSI Design	12*	A1X	4	E
TSTE06	Digital Filters	6	A1X	3	E
TSTE87	Application-Specific Integrated Circuits	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
20 (30)

Specialisation: Systems Technology

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDTS07	System Design and Methodology	6	A1X	1	C
TDDD25	Distributed Systems	6	A1X	2	C/E
TSBK08	Data Compression	6	A1X	2	C/E
TSRT07	Industrial Control Systems	6	A1X	2	C/E
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
Period 2					
TDDD05	Component Based Software	6	A1X	1	C/E
TSFS06	Diagnosis and Supervision	6	A1N	1	C/E

Semester 9 (Autumn 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TANA21	Scientific Computing	6	G1X	3	C/E
TAMS39	Multivariate Statistical Methods	6	A1X	4	E
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TBMT36	Biomedical Optics	6	A1X	1	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDE14	Large-Scale Software Development: Contributions and Evolution	6*	A1X	4	E
TDDE15	Advanced Machine Learning	6	A1X	1	E
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	E
TDDE20	Advanced Project Course - Game, App and Web Development	6*	A1X	4	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E
TDEI13	Enterprise Resource Planning Systems: Process and Implementation	6	A1X	2	E
TDTS06	Computer Networks	6	G2X	1	E
TNCG15	Advanced Global Illumination and Rendering	6	A1X	4	E
TNM067	Scientific Visualization	6	A1X	3	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
21 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TNM095	Artificial Intelligence for Interactive Media	6	A1X	2	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
TSBB17	Visual Object Recognition and Detection	6	A1X	2	E
TSBK03	Advanced Game Programming	6*	A1X	1	E
TSEA26	Design of Embedded DSP Processor	6	A1X	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSEK03	Radio Frequency Integrated Circuits	6	A1X	2	E
TSEK11	Evaluation of an Integrated Circuit	2	A1X	4	E
TSIN01	Information Networks	6	A1X	3	E
TSKS05	Communication Systems, Project Course	12*	A1X	4	E
TSKS12	Modern Channel Coding, Inference and Learning	6	A1X	1	E
TSRT10	Automatic Control - Project Course	12*	A1X	4	E
TSTE17	System Design	12*	A1F	4	E
TSTE25	Power Electronics	6	A1X	3	E
Period 2					
TDDD89	Scientific Method	6	A1X	3	C
TANA09	Numerical Algorithms in Computer Science	4	G2X	1	C/E
TAOP61	Optimization of Realistic Complex Systems	6	A1N	3	E
TBMI02	Medical Image Analysis	6	A1X	1	E
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TDDB44	Compiler Construction	6	A1X	1	E
TDDC90	Software Security	6	A1X	1	E
TDDD07	Real Time Systems	6	A1X	4	E
TDDD30	Advanced Software Engineering	6	A1X	4	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDD56	Multicore and GPU Programming	6	A1X	2	E
TDDE13	Multi Agent Systems	6	A1X	1	E
TDDE14	Large-Scale Software Development: Contributions and Evolution	6*	A1X	4	E
TDDE16	Text Mining	6	A1X	2	E
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
22 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
TDDE20	Advanced Project Course - Game, App and Web Development	6*	A1X	4	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E
TNM086	Virtual Reality Techniques	6	A1X	2	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
TSBK03	Advanced Game Programming	6*	A1X	-	E
TSEA44	Computer Hardware - a System on Chip	6	A1F	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSIN02	Internetworking	6	A1N	1	E
TSKS05	Communication Systems, Project Course	12*	A1X	4	E
TSRT10	Automatic Control - Project Course	12*	A1X	4	E
TSTE17	System Design	12*	A1F	4	E
TSTE26	Powergrid and Technology for Renewable Production	6	A1X	3	E
TSTE85	Low Power Electronics	6	A1X	2	E

Specialisation: AI and Machine Learning

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	C
TDDE15	Advanced Machine Learning	6	A1X	1	E
TSBB17	Visual Object Recognition and Detection	6	A1X	2	E
TSRT62	Modelling and Simulation	6	A1X	3	E
Period 2					
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	C
TDDE13	Multi Agent Systems	6	A1X	1	E
TDDE16	Text Mining	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
23 (30)

Specialisation: Communication

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSIN01	Information Networks	6	A1X	3	C
TSEK03	Radio Frequency Integrated Circuits	6	A1X	2	E
TSIT03	Cryptology	6	A1X	2	E
TSKS05	Communication Systems, Project Course	12*	A1X	4	E
TSKS12	Modern Channel Coding, Inference and Learning	6	A1X	1	E
Period 2					
TSKS05	Communication Systems, Project Course	12*	A1X	4	E

Specialisation: Computer Games Programming

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSBK03	Advanced Game Programming	6*	A1X	1	C
TDDE20	Advanced Project Course - Game, App and Web Development	6*	A1X	4	E
TNCG15	Advanced Global Illumination and Rendering	6	A1X	4	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
Period 2					
TSBK03	Advanced Game Programming	6*	A1X	-	C
TDDE20	Advanced Project Course - Game, App and Web Development	6*	A1X	4	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
TSIN02	Internetworking	6	A1N	1	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
24 (30)

Specialisation: Computer Systems Architecture

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E
TSEA26	Design of Embedded DSP Processor	6	A1X	1	E
TSIT03	Cryptology	6	A1X	2	E
TSKS01	Digital Communication	6*	A1X	4	E
Period 2					
TDDB44	Compiler Construction	6	A1X	1	E
TDDC90	Software Security	6	A1X	1	E
TDDD37	Database Technology	6	G2X	1	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDD56	Multicore and GPU Programming	6	A1X	2	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E
TSIN02	Internetworking	6	A1N	1	E
TSKS01	Digital Communication	6*	A1X	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
25 (30)

Specialisation: Electronics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSEA26	Design of Embedded DSP Processor	6	A1X	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSEK03	Radio Frequency Integrated Circuits	6	A1X	2	E
TSEK11	Evaluation of an Integrated Circuit	2	A1X	4	E
TSTE17	System Design	12*	A1F	4	E
TSTE25	Power Electronics	6	A1X	3	E
Period 2					
TSEA44	Computer Hardware - a System on Chip	6	A1F	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSTE17	System Design	12*	A1F	4	E
TSTE26	Powergrid and Technology for Renewable Production	6	A1X	3	E
TSTE85	Low Power Electronics	6	A1X	2	E

Specialisation: International Software Engineering

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
26 (30)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDC34	Technical, Economic and Societal Evaluation of IT-products	6	A1X	3	C
TDDD69	Software Engineering - Company Project	6*	A1N	1	C
TDDB84	Design Patterns	6	A1X	4	E
TDDD04	Software Testing	6	A1X	2	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDEI13	Enterprise Resource Planning Systems: Process and Implementation	6	A1X	2	E
Period 2					
TDDD69	Software Engineering - Company Project	6*	A1N	1	C
TDDC90	Software Security	6	A1X	1	E
TDDD07	Real Time Systems	6	A1X	4	E
TDDD30	Advanced Software Engineering	6	A1X	4	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDEI19	Management Control	6	A1X	2	E
TEIM03	Intercultural Communication	4	G1X	4	E

Specialisation: Large Scale Software Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDE14	Large-Scale Software Development: Contributions and Evolution	6*	A1X	4	E
Period 2					
TDDD30	Advanced Software Engineering	6	A1X	4	E
TDDE14	Large-Scale Software Development: Contributions and Evolution	6*	A1X	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
27 (30)

Specialisation: Medical Informatics

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDE01	Machine Learning	6	A1X	1	E

Specialisation: Programming and Algorithms

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDB84	Design Patterns	6	A1X	4	E
TDDD08	Logic Programming	6	A1X	4	E
TSIT03	Cryptology	6	A1X	2	E
Period 2					
TDDB44	Compiler Construction	6	A1X	1	E
TDDD56	Multicore and GPU Programming	6	A1X	2	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
28 (30)

Specialisation: Secure Systems

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDB84	Design Patterns	6	A1X	4	C
TDDD04	Software Testing	6	A1X	2	C
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E
TSIT03	Cryptology	6	A1X	2	E
Period 2					
TDDC90	Software Security	6	A1X	1	C
TDDD30	Advanced Software Engineering	6	A1X	4	E
TDDD37	Database Technology	6	G2X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TDDE21	Advanced Project Course: Secure Distributed and Embedded Systems	6*	A1X	4	E

Specialisation: Signal and Image Processing

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TNM067	Scientific Visualization	6	A1X	3	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
TSBB17	Visual Object Recognition and Detection	6	A1X	2	E
TSBK03	Advanced Game Programming	6*	A1X	1	E
TSKS15	Detection and Estimation of Signals	6	A1X	2	E
Period 2					
TBMI02	Medical Image Analysis	6	A1X	1	E
TDDD56	Multicore and GPU Programming	6	A1X	2	E
TNM086	Virtual Reality Techniques	6	A1X	2	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	E
TSBK03	Advanced Game Programming	6*	A1X	-	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
29 (30)

Specialisation: System-on-Chip

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDTS08	Advanced Computer Architecture	6	A1X	2	E
TSEA26	Design of Embedded DSP Processor	6	A1X	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSEK11	Evaluation of an Integrated Circuit	2	A1X	4	E
TSTE17	System Design	12*	A1F	4	E
Period 2					
TDDB44	Compiler Construction	6	A1X	1	E
TDDD56	Multicore and GPU Programming	6	A1X	2	E
TSEA44	Computer Hardware - a System on Chip	6	A1F	1	E
TSEA84	Digital Design Project	6*	A1X	3	E
TSIT02	Computer Security	6	G2F	2	E
TSTE17	System Design	12*	A1F	4	E
TSTE85	Low Power Electronics	6	A1X	2	E

Specialisation: Systems Technology

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSRT62	Modelling and Simulation	6	A1X	3	C/E
TDDB84	Design Patterns	6	A1X	4	E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	E
Period 2					
TDDB44	Compiler Construction	6	A1X	1	C/E
TDDD43	Advanced Data Models and Databases	6*	A1X	2	E
TDDE19	Advanced Project Course - AI and Machine Learning	6*	A1F	4	E

LINKÖPING UNIVERSITY
FACULTY OF SCIENCE AND ENGINEERING

COMPUTER SCIENCE AND ENGINEERING, M SC IN
ENGINEERING
APPROVED
30 (30)

Semester 10 (Spring 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TQXX33	Degree project - Master's Thesis	30*	A1X	-	C
Period 2					
TQXX33	Degree project - Master's Thesis	30*	A1X	-	C

ECV = Elective / Compulsory /Voluntary
*The course is divided into several semesters and/or periods