

Computer Science and Software Engineering, M Sc in Engineering

300 credits

Civilingenjör i mjukvaruteknik

6CMJU

Valid from: 2017 Spring semester

Determined by

Board of Studies for Computer Science
and Media Technology

Date determined

2017-01-25

Entry requirements

Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp

Curriculum

Semester 1 (Autumn 2017)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 0 | | | | | |
| TATA65 | Discrete Mathematics | 6* | G1X | - | C |
| Period 1 | | | | | |
| TATA65 | Discrete Mathematics | 6* | G1X | 2 | C |
| TDDD70 | Professionalism for Engineers, part 1 | 1* | G1X | - | C |
| TDDE23 | Functional and Imperative Programming, Part 1 | 6 | G1X | 3 | C |
| TDDE25 | Perspectives to Computer and Software Technology | 6* | G1X | 4 | C |
| Period 2 | | | | | |
| TDDD70 | Professionalism for Engineers, part 1 | 1* | G1X | - | C |
| TDDD72 | Logic | 6 | G1X | 2 | C |
| TDDE24 | Functional and Imperative Programming, Part 2 | 5 | G1X | 3 | C |
| TDDE25 | Perspectives to Computer and Software Technology | 6* | G1X | 4 | C |

Semester 2 (Spring 2018)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDD78 | Object Oriented Programming and Java | 6 | G1X | 1/3 | C |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD80 | Project: Mobile and Social Applications | 11* | G1X | 3/4 | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TSEA28 | Computer Hardware and Architecture Y | 6* | G1X | 2 | C |
| Period 2 | | | | | |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD80 | Project: Mobile and Social Applications | 11* | G1X | 4 | C |
| TDDD85 | Formal Languages and Automata Theory | 6 | G1X | 2 | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TSEA28 | Computer Hardware and Architecture Y | 6* | G1X | 3 | C |

Semester 3 (Autumn 2018)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TATA24 | Linear Algebra | 8* | G1X | 4 | C |
| TDDC93 | Software Engineering Theory | 4 | G2X | 1 | C |
| TDDD84 | Professionalism for Engineers, part 3 | 1* | G1X | - | C |
| TDDD86 | Data Structures, Algorithms and Programming Paradigms | 11* | G1X | 2 | C |
| TATA40 | Perspectives on Mathematics | 1* | G1X | - | V |
| Period 2 | | | | | |
| TATA24 | Linear Algebra | 8* | G1X | 4 | C |
| TATA79 | Introductory Course in Calculus | 6 | G1X | 2 | C |
| TDDD84 | Professionalism for Engineers, part 3 | 1* | G1X | - | C |
| TDDD86 | Data Structures, Algorithms and Programming Paradigms | 11* | G1X | 3 | C |
| TATA40 | Perspectives on Mathematics | 1* | G1X | - | V |

Semester 4 (Spring 2019)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TATA41 | Calculus in One Variable 1 | 6 | G1X | 4 | C |
| TDDB68 | Concurrent Programming and Operating Systems | 6 | G2X | 3 | C |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TDDE35 | Large-Scale Distributed Systems and Networks | 11* | G1X | 2 | C |
| THEN18 | English | 6* | G1X | 4 | E |
| TATA40 | Perspectives on Mathematics | 1* | G1X | - | V |
| TGTU63 | Visits to Industry | 1* | G1X | - | V |
| Period 2 | | | | | |
| TATA91 | Calculus in One and Several Variables | 6 | G1X | 4 | C |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TDDE35 | Large-Scale Distributed Systems and Networks | 11* | G1X | 2 | C |
| THEN18 | English | 6* | G1X | 4 | E |
| TPTE06 | Industrial Placement | 6 | G1X | - | E |
| TATA40 | Perspectives on Mathematics | 1* | G1X | - | V |
| TGTU63 | Visits to Industry | 1* | G1X | - | V |

Semester 5 (Autumn 2019)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDAB01 | Probability and Statistics | 6 | G2X | 2 | C |
| TDDC17 | Artificial Intelligence | 6 | G2X | 3 | C |
| TDDD91 | Professionalism for Engineers, part 5 | 1* | G1X | - | C |
| TDDD92 | Artificial Intelligence - Project | 5* | G2X | 4 | C |
| TGTU63 | Visits to Industry | 1* | G1X | - | V |
| Period 2 | | | | | |
| TDDD37 | Database Technology | 6 | G2X | 1 | C |
| TDDD91 | Professionalism for Engineers, part 5 | 1* | G1X | - | C |
| TDDD92 | Artificial Intelligence - Project | 5* | G2X | 4 | C |
| TFYA87 | Physics and Mechanics | 6 | G1X | 3 | C |
| TGTU63 | Visits to Industry | 1* | G1X | - | V |

Semester 6 (Spring 2020)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD96 | Software Engineering - Bachelor Project | 15* | G2X | 2/3 | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TSKS21 | Signals, Information and Images | 8 | G2X | 1 | C |
| TSRT04 | Introduction in Matlab | 2 | G1X | 2 | E |
| Period 2 | | | | | |
| TDDD79 | Professionalism for Engineers, part 2 | 1* | G1X | - | C |
| TDDD94 | Professionalism for Engineers, part 4 | 1* | G1X | - | C |
| TDDD96 | Software Engineering - Bachelor Project | 15* | G2X | 2/4 | C |
| TDDD98 | Professionalism for Engineers, part 6 | 1* | G1X | - | C |
| TSRT19 | Automatic Control | 6 | G2X | 1 | C |
| TPTE06 | Industrial Placement | 6 | G1X | - | E |

Semester 7 (Autumn 2020)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TAOP33 | Combinatorial Optimization, Introductory Course | 4 | G2X | 2 | C/E |
| TAMS22 | Probability Theory and Bayesian Networks | 6* | A1X | 4 | E |
| TANA21 | Scientific Computing | 6 | G1X | 3 | E |
| TATA55 | Abstract Algebra | 6* | G2X | 3 | E |
| TBME04 | Anatomy and Physiology | 6 | G2X | 3 | E |
| TBMI19 | Medical Information Systems | 6* | A1X | 2 | 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 |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | 2 | E |
| TDDD43 | Advanced Data Models and Databases | 6* | A1X | 2 | E |
| TDDD53 | Advanced Interaction Design | 6 | A1X | 1 | E |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | E |
| TEIO32 | Project Management and Organization | 6* | G2X | 3 | E |
| TGTU91 | Oral and Written Communication | 6 | G1X | 2 | E |
| TKMJ24 | Environmental Engineering | 6 | G1N | 1 | E |
| TSBB06 | Multidimensional Signal Analysis | 6* | A1X | 2 | E |
| TSBB08 | Digital Image Processing | 6 | A1X | 4 | E |
| TSDT14 | Signal Theory | 6 | A1X | 1 | E |
| TSIT03 | Cryptology | 6 | A1X | 2 | E |
| Period 2 | | | | | |
| TAMS22 | Probability Theory and Bayesian Networks | 6* | A1X | 4 | E |
| TANA09 | Numerical Algorithms in Computer Science | 4 | G2X | 1 | E |
| TAOP61 | Optimization of Realistic Complex Systems | 6 | A1N | 3 | E |
| TATA55 | Abstract Algebra | 6* | G2X | 3 | E |
| TBMI19 | Medical Information Systems | 6* | A1X | 3 | E |
| TDDC73 | Interaction Programming | 6 | G2X | 1 | E |

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-------------|--------------------------------------|---------|-------|------------------|-----|
| TDDD07 | Real Time Systems | 6 | A1X | 4 | E |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |
| TDDD43 | Advanced Data Models and Databases | 6* | A1X | 2 | E |
| TDDD49 | Programming in C# and .NET Framework | 4 | G2X | 3 | E |
| TDDE01 | Machine Learning | 6 | A1X | 1 | E |
| TDDE02 | Software Entrepreneurship | 6 | A1X | 2 | E |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | E |
| TEIM03 | Intercultural Communication | 4 | G1X | 4 | E |
| TEIO32 | Project Management and Organization | 6* | G2X | 1 | E |
| TGTU04 | Leadership | 6 | G2X | 2 | E |
| TGTU49 | History of Technology | 6 | G1X | 3 | E |
| TSBB06 | Multidimensional Signal Analysis | 6* | A1X | 3 | E |
| TSIT02 | Computer Security | 6 | G2F | 2 | E |
| TSKS33 | Complex networks and big data | 6 | A1X | 3 | E |
| TSRT78 | Digital Signal Processing | 6 | A1X | 2 | E |

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 |
| TSRT78 | Digital Signal Processing | 6 | A1X | 2 | E |

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: Industrial Economics

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|-------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | C |
| TEIO32 | Project Management and Organization | 6* | G2X | 3 | C |
| Period 2 | | | | | |
| TDDE02 | Software Entrepreneurship | 6 | A1X | 2 | C |
| TEIO32 | Project Management and Organization | 6* | G2X | 1 | C |

Specialisation: International Software Engineering

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDD04 | Software Testing | 6 | A1X | 2 | E |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | 2 | E |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | E |
| Period 2 | | | | | |
| TEAE01 | Industrial Economics, Basic Course | 6 | G1X | 2 | C |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |
| TDDE02 | Software Entrepreneurship | 6 | A1X | 2 | E |
| TDEI19 | Management Control | 6 | A1X | 2 | E |
| TEIM03 | Intercultural Communication | 4 | G1X | 4 | E |
| TSIT02 | Computer Security | 6 | G2F | 2 | E |

Specialisation: Large Scale Software Engineering

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDC34 | Technical, Economic and Societal Evaluation of IT-products | 6 | A1X | 3 | E |
| TDDD04 | Software Testing | 6 | A1X | 2 | E |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | 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 |
| TBMI04 | eHealth: Aims and Applications | 6 | G2X | 2/4 | E |
| TDDD37 | Database Technology | 6 | G2X | 1 | E |
| TSIT02 | Computer Security | 6 | G2F | 2 | E |

Specialisation: Programming and Algorithms Specialization

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| 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 |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | 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 |
| TSKS33 | Complex networks and big data | 6 | A1X | 3 | E |

Specialisation: Secure Systems

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDE45 | Software Design and Construction | 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 |
| TDDD37 | Database Technology | 6 | G2X | 1 | E |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |

Semester 8 (Spring 2021)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TAOP07 | Introduction to Optimization | 6 | G1X | 3 | C/E |

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-------------|--|---------|-------|------------------|-----|
| TANA15 | Numerical Linear Algebra | 6 | A1X | 1 | E |
| TATA53 | Linear Algebra, Honours Course | 6* | G2X | - | E |
| TATA54 | Number Theory | 6* | G2X | 3 | E |
| TATA64 | Graph Theory | 6* | A1X | 2 | E |
| TBMI26 | Neural Networks and Learning Systems | 6 | A1X | 2 | 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 |
| 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* | A1N | 4 | E |
| TDDE09 | Natural Language Processing | 6 | A1X | 2 | E |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDDE51 | Methods and Tools for Large Distributed Projects | 6* | A1N | 4 | E |
| TDTS07 | System Design and Methodology | 6 | A1X | 1 | E |
| TDTS21 | Advanced Networking | 6* | A1X | 1 | E |
| TEIE88 | Computer Law | 4 | G1X | 1 | E |
| TEIO13 | Leadership and Organizational Change | 6 | A1X | 4 | E |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 4 | E |
| TGTU94 | Technology and Ethics | 6 | G1X | 1 | 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 |

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| TSBK08 | Data Compression | 6 | A1N | 2 | E |
| TSRT07 | Industrial Control Systems | 6 | A1N | 2 | E |
| Period 2 | | | | | |
| TATA53 | Linear Algebra, Honours Course | 6* | G2X | - | E |
| TATA54 | Number Theory | 6* | G2X | 1 | E |
| TATA64 | Graph Theory | 6* | A1X | 2 | E |
| TBMT26 | Technology in Intensive Care and Surgery | 6 | A1X | 1 | E |
| TDDA69 | Data and Program Structures | 6* | G2X | 1 | E |
| TDDC78 | Programming of Parallel Computers - Methods and Tools | 6 | A1X | 3 | E |
| TDDD17 | Information Security, Second Course | 6* | A1X | 4 | E |
| TDDD27 | Advanced Web Programming | 6 | A1N | 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* | A1N | 4 | E |
| TDDE07 | Bayesian Learning | 6 | A1X | 2 | E |
| TDDE31 | Big Data Analytics | 6 | A1X | 3 | E |
| TDDE34 | Software Verification | 6 | A1X | 1 | E |
| TDDE41 | Software Architectures | 6 | A1X | 1 | E |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDDE51 | Methods and Tools for Large Distributed Projects | 6* | A1N | 4 | 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 |
| TEIO06 | Innovative Entrepreneurship | 6 | A1X | 2 | E |
| TEIO94 | Entrepreneurship and Idea Development | 6* | G2X | 4 | E |
| TGTU95 | Philosophy of Science and Technology | 6 | G1X | 4 | E |
| TNM079 | Modelling and Animation | 6 | A1X | 2 | E |
| TSBB15 | Computer Vision | 12* | A1X | 3 | E |
| TSBK07 | Computer Graphics | 6* | A1X | 1 | E |
| TSFS06 | Diagnosis and Supervision | 6 | A1N | 1 | E |

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-------------|---------------|---------|-------|------------------|-----|
| TSRT14 | Sensor Fusion | 6 | A1N | 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* | A1N | 4 | E |
| TDDE09 | Natural Language Processing | 6 | A1X | 2 | E |
| TSRT07 | Industrial Control Systems | 6 | A1N | 2 | E |
| Period 2 | | | | | |
| TDDD48 | Automated Planning | 6 | A1X | 1 | E |
| TDDD95 | Algorithmic Problem Solving | 6* | A1X | 4 | E |
| TDDE05 | AI Robotics | 6* | A1N | 4 | E |
| TDDE07 | Bayesian Learning | 6 | A1X | 2 | E |
| TDDE31 | Big Data Analytics | 6 | A1X | 3 | E |
| TSFS06 | Diagnosis and Supervision | 6 | A1N | 1 | E |
| TSRT14 | Sensor Fusion | 6 | A1N | 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 |

Specialisation: Industrial Economics

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--------------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TEIO13 | Leadership and Organizational Change | 6 | A1X | 4 | C |
| Period 2 | | | | | |
| TEIO06 | Innovative Entrepreneurship | 6 | A1X | 2 | C |

Specialisation: Large Scale Software Engineering

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDDE51 | Methods and Tools for Large Distributed Projects | 6* | A1N | 4 | E |
| Period 2 | | | | | |
| TDDE34 | Software Verification | 6 | A1X | 1 | E |
| TDDE41 | Software Architectures | 6 | A1X | 1 | E |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDDE51 | Methods and Tools for Large Distributed Projects | 6* | A1N | 4 | E |

Specialisation: Medical Informatics

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TBMI26 | Neural Networks and Learning Systems | 6 | A1X | 2 | E |
| TBMI31 | Medical Information and Knowledge | 6 | A1F | 4 | 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 | 3 | E |
| TEIO95 | eHealth: Innovation and Entrepreneurship | 6 | G2F | 2/4 | E |

Specialisation: Programming and Algorithms Specialization

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TATA64 | Graph Theory | 6* | A1X | 2 | E |
| 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 | | | | | |
| TATA64 | Graph Theory | 6* | A1X | 2 | E |
| TDDA69 | Data and Program Structures | 6* | G2X | 1 | E |
| TDDC78 | Programming of Parallel Computers - Methods and Tools | 6 | A1X | 3 | E |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |
| TDDD95 | Algorithmic Problem Solving | 6* | A1X | 4 | E |
| TDDE34 | Software Verification | 6 | A1X | 1 | E |
| TDDE41 | Software Architectures | 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 |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDS21 | Advanced Networking | 6* | A1X | 1 | E |
| Period 2 | | | | | |
| TDDD17 | Information Security, Second Course | 6* | A1X | 4 | C |
| TDDD27 | Advanced Web Programming | 6 | A1N | 3 | E |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |
| TDDE46 | Software Quality | 6* | A1N | 2 | E |
| TDS21 | Advanced Networking | 6* | A1X | 1 | E |

Semester 9 (Autumn 2021)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TBMI28 | eHealth Project | 12* | A1X | 2/4 | E |
| TDDD53 | Advanced Interaction Design | 6 | A1X | 1 | 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 |
| TDDE52 | Programming Project with Open Source Code | 6* | A1X | 4 | E |
| TDEI13 | Enterprise Resource Planning Systems: Process and Implementation | 6 | A1X | 2 | E |
| TDEI72 | Strategy and Digitisation - Technology, Standards and Network Effects | 6 | A1X | 4 | E |
| TEIM11 | Industrial Marketing | 6 | G2X | 3 | E |
| TEIO90 | Innovation Management | 6 | A1X | 2 | E |

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| TNCG15 | Advanced Global Illumination and Rendering | 6 | A1X | 4 | E |
| TNM067 | Scientific Visualization | 6 | A1X | 3 | E |
| TNM095 | Artificial Intelligence for Interactive Media | 6 | A1X | 2 | E |
| TSBB19 | Machine Learning for Computer Vision | 6 | A1X | 2 | E |
| TSBK03 | Advanced Game Programming | 6* | A1X | 1 | E |
| TSFS12 | Autonomous Vehicles - Planning, Control, and Learning Systems | 6 | A1X | 1 | E |
| TSIN01 | Information Networks | 6 | A1X | 3 | E |
| TSKS12 | Modern Channel Coding, Inference and Learning | 6 | A1X | 1 | E |
| TSRT92 | Modelling and Learning for Dynamical Systems | 6 | A1X | 3 | E |
| Period 2 | | | | | |
| TDDD89 | Scientific Method | 6 | A1X | 3 | C |
| TBMI02 | Medical Image Analysis | 6 | A1N | 1 | E |
| TBMI28 | eHealth Project | 12* | A1X | - | E |
| Tddb44 | Compiler Construction | 6 | A1X | 1 | E |
| TDDE13 | Software Security | 6 | A1X | 1 | E |
| TDDD56 | Multicore and GPU Programming | 6 | A1X | 2 | E |
| TDDE13 | Multi Agent Systems | 6 | A1X | 1 | E |
| TDDE16 | Text Mining | 6 | A1X | 2 | 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 |
| TDDE52 | Programming Project with Open Source Code | 6* | A1X | 4 | E |
| TNM086 | Virtual Reality Techniques | 6 | A1X | 2 | E |
| TSBK03 | Advanced Game Programming | 6* | A1X | - | E |
| TSIN02 | Internetworking | 6 | A1N | 1 | 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 |
| TSBB19 | Machine Learning for Computer Vision | 6 | A1X | 2 | E |
| TSFS12 | Autonomous Vehicles - Planning, Control, and Learning Systems | 6 | A1X | 1 | E |
| TSRT92 | Modelling and Learning for Dynamical Systems | 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 |

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 |

Specialisation: Industrial Economics

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TEIM11 | Industrial Marketing | 6 | G2X | 3 | C |
| TEIO90 | Innovation Management | 6 | A1X | 2 | C |
| TDEI72 | Strategy and Digitisation - Technology, Standards and Network Effects | 6 | A1X | 4 | E |

Specialisation: International Software Engineering

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDD69 | Software Engineering - Company Project | 6* | A1N | 1 | C |
| 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 |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | E |
| TDEI13 | Enterprise Resource Planning Systems: Process and Implementation | 6 | A1X | 2 | E |
| Period 2 | | | | | |
| TDDC34 | Technical, Economic and Societal Evaluation of IT-products | 6 | A1X | 4 | C |
| TDDD69 | Software Engineering - Company Project | 6* | A1N | 1 | C |
| TDDC90 | Software Security | 6 | A1X | 1 | E |
| TDDD07 | Real Time Systems | 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 |
| TEIM13 | Intercultural Communication | 6 | G1X | 4 | E |

Specialisation: Large Scale Software Engineering

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDE52 | Programming Project with Open Source Code | 6* | A1X | 4 | E |
| Period 2 | | | | | |
| TDDE52 | Programming Project with Open Source Code | 6* | A1X | 4 | E |

Specialisation: Medical Informatics

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TBMI28 | eHealth Project | 12* | A1X | 2/4 | E |
| TBMT14 | Biomedical Engineering - Project Course | 12* | A1X | 4 | E |
| TDDD43 | Advanced Data Models and Databases | 6* | A1X | 2 | E |
| Period 2 | | | | | |
| TBMI28 | eHealth Project | 12* | A1X | - | E |
| 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 Specialization

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| Period 1 | | | | | |
| TDDD08 | Logic Programming | 6 | A1X | 4 | E |
| TDDE45 | Software Design and Construction | 6 | A1X | 4 | E |
| TSIT03 | Cryptology | 6 | A1X | 2 | E |
| Period 2 | | | | | |
| TDDDB44 | Compiler Construction | 6 | A1X | 1 | E |
| TDDD56 | Multicore and GPU Programming | 6 | A1X | 2 | E |

Specialisation: Secure Systems

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-----------------|--|---------|-------|------------------|-----|
| Period 1 | | | | | |
| 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 |
| TDDD38 | Advanced Programming in C++ | 6* | A1X | - | E |
| TDDE21 | Advanced Project Course: Secure Distributed and Embedded Systems | 6* | A1X | 4 | E |

Semester 10 (Spring 2022)

| 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

Common rules

Structure and organisation of study programmes

The contents and design of the programmes are to be continuously revised such that new knowledge is integrated into courses and specialisations. Within one programme, several study specialisations or profiles may be available. The identities of the study specialisations or profiles and the regulations governing how these may be selected are given in the syllabus and curriculum for the particular field of study and programmes.

The structure and organisation of the programmes are to follow specified criteria that are summarised in the syllabus for each programme.

- The syllabus defines the aims of the study programme.
- The curriculum, which constitutes one part of the syllabus for the field of study, gives details of the terms in which the various courses have been timetabled, and their scheduling through the academic year.
- The course syllabus specifies, among other things, the aim and contents of the course, and the prior knowledge that a student must have in order to be able to benefit from the course.

Qualification requirements

The qualification requirements specified in the Higher Education Ordinance 2007 apply to students admitted after 1 July 2007. A student who has completed components of a programme after 1 July 2007 has the right to be assessed with respect to the qualification requirements specified by the Higher Education Ordinance 2007. In addition, local regulations laid down by the faculty boards and university board apply, see <http://styrdokument.liu.se/Regelsamling/VisaBeslut/622693>.

Higher Education Act Chapter 1, Section 8:

First-cycle courses and study programmes are to develop:

- the ability to make independent and critical assessments
- the ability to identify, formulate and solve problems autonomously, and
- the preparedness to deal with changes in working life.

In addition to knowledge and skills in their field of study, students shall develop the ability to:

- gather and interpret information at a scholarly level
- stay abreast of the development of knowledge, and
- communicate their knowledge to others, including those who lack specialist knowledge in the field.

Qualifications within a study programme

Qualification requirements that are specific to a study programme are given in the syllabus for that programme.

Matriculation and postponement of matriculation

A person who has been accepted for a study programme is to start their studies (matriculate) in the term that is specified in the decision about admission. The date and location of the compulsory matriculation procedure will be communicated to those admitted to the first term of the programme.

At any one admission occasion, it is possible to be admitted to only one place on a study programme. A student who has been granted a place on a study programme and who is offered and accepts a place on another study programme during a supplementary round of admission will lose the place offered for the first study programme.

Regulations concerning postponement of matriculation have been laid down in the admission regulations for Linköping University,
<http://styrdokument.liu.se/Regelsamling/VisaBeslut/622645>.

A person who has been granted postponement must present to the admitting authority, before the term in which the studies are to be started and before the date of application, a renewed registration for the programme and a copy of the decision granting postponement.

Admission to a later part of a programme

Admission to a part of a study programme is used here to refer to admission with the purpose of completing the programme and taking a degree. Admission to a later part of a programme may take place only if sufficient resources and space on the programme are available. Furthermore, the applicant must satisfy the entry requirements for the relevant term of the programme, as specified in
http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva/Tekniska_fakulteten.

Interruption in studies

Notification of an interruption in studies is to be made through the Student Portal. If such a notification is not made and if the student does not register for the first term during which the interruption is to take place, the interruption will be considered to be a withdrawal. An interruption in studies must cover a complete term, and notification of interruptions can be given for a maximum of two consecutive terms. Notification of resumption of studies is to take place at the term registration for the term that follows the interruption. If the student does not register at the term registration, this will be regarded as withdrawal from studies.

A student who is taking an interruption in studies may during this period retake examinations if he or she has re-registered for the most recent study term of the programme. A student who wishes to take another course during the interruption in studies must apply for this separately. The student is responsible that

registration for courses is carried out at the correct times in preparation for the resumption of studies.

Withdrawal from a study programme

A student who wishes to withdraw from a study programme must notify the study guidance counsellor. A student who leaves the studies without giving notification of an interruption in study and who fails to register for the immediately subsequent term is considered to have withdrawn. A student who has withdrawn may return to the study programme if a vacancy is available that is not required for students returning after an interruption in study, and not required for students who are changing their location of study and/or study programme.

Interrupting a course

The vice-chancellor's decision concerning regulations for registration, deregistration and reporting results (Dnr LiU-2015-01241) states that interruptions in study are to be recorded in Ladok. Thus, all students who do not participate in a course for which they have registered must record the interruption, such that the registration on the course can be removed. Deregistration from a course is carried out using a web-based form: www.lith.liu.se/for-studenter/kurskomplettering?l=sv.

Courses within a study programme

The curriculum for the various years of a study programme specify which courses are compulsory (o), elective (v) and voluntary (f). If a student wishes to study a different combination than the one specified in the curriculum, an application must be made to the board of studies.

Registration for programme courses

Registration for courses that are given as part of a study programme must be made during the specified period, which has been preliminarily set to 1-10 April for the autumn term, and 1-10 October for the spring term. Information about course registration is published on a webpage, sent to students by email, and disseminated at scheduled information meetings.

Registration for programme courses as single-subject courses

Admission to a programme course as a single-subject subject course may take place only if sufficient resources and space on the course are available. Furthermore, the applicant must satisfy the entry requirements for the relevant course.

Cancelled courses

Courses with few participants (fewer than 10) may be cancelled or organised in a

manner that differs from that stated in the course syllabus. The board of studies is to deliberate and decide whether a course is to be cancelled or changed from the course syllabus.

Timetabling

Courses are timetabled after a decision has been made concerning the assignment of the course to a study period. A central timetable is not drawn up for courses with fewer than five participants. Most project courses do not have a central timetable.

Study planning

Students who require support in planning their continued studies can contact the study guidance counsellor of the programme. Study planning involves the student and the study guidance counsellor together drawing up an individual plan for studies during the subsequent term. The individual plan may allow the student to deviate from the general curriculum.

Completed first-cycle courses are a precondition for successful studies at more advanced levels. For this reason, study planning is based on giving priority to courses from earlier years of study that have not been completed. If further capacity is available, new courses may be taken.

Study planning takes place on a regular basis if the student:

- does not satisfy the requirements for progression to later terms. In order for a student to be able to participate in courses from later years in such cases, a decision of exemption is required.
- does not satisfy the requirements for starting a degree project.

Other situations in which study planning may be required:

- A student has fallen behind during the early part of a study programme and has failed to complete several courses.
- A student has not satisfied the entry requirements for a degree project before term 6 of an engineering degree.
- A student has applied for admission to a later part of a programme.
- Studies have been carried out abroad.
- A study programme is to be resumed after an interruption.

In these cases the study guidance counsellor supports the student in planning the continued studies, also in situations in which the student can register for the relevant courses without the need for a special decision for the continued studies.

Part of education abroad

Students can exchange study at LiTH for study at an institute of higher education abroad, and/or work on a degree project abroad.

In the event that study (courses) at LiTH are exchanged for study abroad, the

relevant board of studies (faculty programme director) is responsible for a decision about an individual study plan, which is to be drawn up in advance, and about the final course approval and its inclusion in the qualification requirements. For this reason, students who plan to participate in an exchange should contact the faculty programme director (or equivalent) at the Dean's Office of the Institute of Technology.

Regulations for entry requirements, ranking and nomination for study abroad through LiTH's exchange agreements are specified in:
<http://stydokument.liu.se/Regelsamling/VisaBeslut/622362>. Special regulations apply for the compulsory study abroad within Ii (Industrial Engineering and Management – International) and Yi (Applied Physics and Electrical Engineering – International).

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/departments boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.