Study guide 2020–23 > Faculty of Information Technology
> Master's Degree Education in Information and Software Engineering
> Master's Programme in Information and Software Engineering

Master's Programme in Information and Software Engineering

Degree title:	Master of Science (Technology)	**Degree program type:**	Master's Degree
Credits:	120+ cr	**Language:**	Finnish
Responsible organisation:	Faculty of Information Technology	**Curriculum periods:**	2022-2023

Description

Teknologian mahdollisuuksien hyödyntämiseksi sekä Suomessa että kansainvälisesti IT-alalla on suuri tarve tutkimus-, kehitys- ja innovaatiotoiminnan asiantuntijoista ja ammattilaisista. Yhteiskunta tarvitsee koneita ja ihmisiä sekä niiden välisiä rajapintoja ymmärtäviä diplomi-insinöörejä, jotka omaavat vision, miten vanhoja ratkaisuja korvataan uusilla ja paremmilla menetelmillä. Uusien ratkaisujen kehittäminen edellyttää myös eri alojen asiantuntijoiden keskinäistä yhteistyötä.

Tieto- ja ohjelmistotekniikan DI-ohjelma laajentaa ja täydentää yliopiston kandidaattiohjelmaa. Se tuottaa sekä sisällöllistä osaamista että työelämätaitoja, joita tarvitaan vastuullisissa tehtävissä. Tutkinto-ohjelma tarjoaa monipuoliset mahdollisuudet toimia IT-alan vaativissa asiantuntijatehtävissä. Sen sisältämät tieto- ja ohjelmistotekniikan opintosuunnat syventävät kandidaattiohjelman teknistä sisältöä sekä tuottavat asiantuntijatyössä tarvittavia projekti-, ryhmätyö- ja yhteistyötaitoja.

DI-ohjelma luo myös taitoa omaksua uutta, tekniikan alalle vierasta tietoa sekä kykyä hyödyntää tätä epätäydellistä tietoa ongelmanratkaisussa ja yhteistyössä eri alojen asiantuntijoiden kanssa. Tämän takia tutkinto-ohjelman sisältyy toinen, muulta kuin IT-alalta valittava opintokokonaisuus. Se täydentää ammattitaitoa luomalla kyvyn tarkastella asioita useammasta viitekehyksestä monitieteisesti sekä käyttäjä- ja tarvelähtöisesti. Yliopistolla on laaja monitieteinen tarjonta toiseksi opintokokonaisuudeksi.

Learning outcomes

Tieto- ja ohjelmistotekniikan diplomi-insinööriksi valmistuva opiskelija osaa:

- toimia tieto- ja ohjelmistotekniikan asiantuntijana ja kehittäjänä
- ratkaista joustavasti ja tarvelähtöisesti ongelmia monitieteisissä viitekehyksissä
- toimia vastuullisesti yhteistyöhankkeissa
- arvioida omaa osaamistaan ja jatkaa sen kehittämistä
- työskennellä epätäydellisen informaation ja ymmärryksen kanssa
- kommunikoida ja toimia monikulttuurisissa ympäristöissä
- edistää laaja-alaisesti vastuullista toimintaa kestävän kehityksen toimintaperiaatteilla.

Tämän toteuttamiseksi valmistuva opiskelija osaa:

- ajatella selkeästi ja jäsennellysti
- soveltaa tieteellistä tietoa ja menetelmiä
- suunnitella ja toteuttaa vaativia IT-järjestelmiä
- tarkastella asioita eri viitekehyksistä
- toimia vastuullisesti annettujen määräaikojen ja resurssien puitteissa.

Structure

Select all (100+ cr)

Valitse opintosuunta ‹

Select 1 pcs. (85+ cr)

Software Engineering 85+ cr TEKMA_OHTOS ‹
Detailed description

Select all (85+ cr)

Advanced Studies in Information and Software Engineering
85+ cr TEKSYV ‹
Detailed description

Select all (85+ cr)

Kaikille yhteiset opinnot ‹

Select all (45 cr)

ITKY4000 Orientation to University Studies for Master's Degree Students (2 cr) ⌄
TEKS4005 Interdisciplinary Project Course (10 cr) ⌄
TEKS5001 Master's Thesis (Tech.) Seminar (3 cr) ⌄
TEKS5002 Master's Thesis (Tech.) (30 cr) ⌄
TEKS5003 Maturity Test, M.Sc. (Tech.) (0 cr) ⌄

Opintosuunnan syventävät opinnot ‹

Select all (40+ cr)

Kaikille yhteiset opinnot ‹

Select all (20 cr)

TIES4080 Web application development (5 cr) ⌄
TJTS5901 Continuous Software Engineering (5 cr) ⌄
TIES441 Software Architectures (5 cr) ⌄
TIES546 Software Testing (5 cr) ⌄

Valinnaiset opinnot ‹

Select min. 20 cr

TJTS5702 Lean Startups (5 cr) ⌄
TEKS4404 Software Product Development (5 cr) ⌄
TEKS5606 Design and Implementation of Data Structures (5 cr) ⌄
KOGS5505 Interaction Design (5 cr) ⌄
ITKST53 Software Security (3–5 cr) ⌄

Selection group

Select min. 0 cr

TIES5011 Research Methods in Computer Science (3 cr) ⌄
KOGS403 Empirical Research Methods (5 cr) ⌄
TEKS5012 Strategic International Business Simulation

(7 cr) ⌄

Any course unit

Data Engineering 85+ cr TEKMA_DATOS ‹
[Detailed description](#)

[Select all (85+ cr)]

Tieto- ja ohjelmistotekniikan syventävät opinnot (Datatekniikka)
85+ cr TEKSYVDAT ‹
[Detailed description](#)

[Select all (85+ cr)]

Kaikille yhteiset opinnot ‹

[Select all (45 cr)]

[ITKY4000 Orientation to University Studies for Master's Degree Students (2 cr)](#) ⌄
[TEKS4005 Interdisciplinary Project Course (10 cr)](#) ⌄
[TEKS5001 Master's Thesis (Tech.) Seminar (3 cr)](#) ⌄
[TEKS5002 Master's Thesis (Tech.) (30 cr)](#) ⌄
[TEKS5003 Maturity Test, M.Sc. (Tech.) (0 cr)](#) ⌄

Opintosuunnan syventävät opinnot ‹

[Select all (40+ cr)]

Kaikille yhteiset opinnot ‹

[Select min. 20 cr]

[TIES324 Signal Processing (4–5 cr)](#) ⌄
[TIES4450 Data Mining and Machine Learning (5 cr)](#) ⌄
[TIES327 Network Security (3–7 cr)](#) ⌄
[TJTS5901 Continuous Software Engineering (5 cr)](#) ⌄

Valinnaiset opinnot ‹

[Select min. 20 cr]

Selection group

[Select min. 0 cr]

[TIES411 Computer Vision and Image Analysis (5 cr)](#) ⌄
[TILA141 Statistical Inference 1 (5 cr)](#) ⌄
[TILA142 Statistical Inference 2 (5 cr)](#) ⌄
[TILA350 Bayes Statistics 1 (5 cr)](#) ⌄
[TEKS4141 Introduction to Deep Learning (5 cr)](#) ⌄

Selection group

[Select min. 0 cr]

[ITKS6400 IoT/Embedded Security (5 cr)](#) ⌄
[TIES5350 Wireless Sensor Networks (5–8 cr)](#) ⌄
[TIES5370 Laboratory Works in Wireless Sensor Networks (2–8 cr)](#) ⌄
[TIES536 Wireless Embedded InterNetworking (3–5 cr)](#) ⌄
[TEKS4440 Communication of IoT Devices (5 cr)](#) ⌄

Selection group

[Select min. 0 cr]

TIES483 Nonlinear Optimization (5 cr) ·········· ⌄

TIES584 Advanced Mathematical Modelling (5 cr) ·········· ⌄

TIES481 Simulation (5 cr) ·········· ⌄

MATA114 Ordinary Differential Equations (4 cr) ·········· ⌄

TILA311 Generalized Linear Models 1 (2–5 cr) ·········· ⌄

Selection group

Select min. 0 cr

KYBS7041 Anomaly Detection (3–5 cr) ·········· ⌄

ITKST53 Software Security (3–5 cr) ·········· ⌄

KYBS2001 Introductory Penetration Testing and
Security Assessment (5 cr) ·········· ⌄

Selection group

Select min. 0 cr

TIES5011 Research Methods in Computer Science (3 cr) ·········· ⌄

TEKS5012 Strategic International Business Simulation
(7 cr) ·········· ⌄

Any course unit

Muut tutkinto-ohjelman opinnot ·········· ‹

Select all (15+ cr)

Toinen opintokokonaisuus ·········· ‹

Select min. 1 pcs. (15+ cr)

Pedagogical Intermediate Studies in Adult Education   **35 cr** ·········· ‹
  APEPED
Detailed description

Select all (35 cr)

APEA511 Personalized Teacherhood and Teacher Practicing I (5 cr) ·········· ⌄

APEA512 Personalized Teacherhood and Teacher Practicing II (5 cr) ·········· ⌄

APEA515 Theoretical and Philosophical Foundations of Adult
Education (5 cr) ·········· ⌄

APEA520 Individual and Communal Dimensions of Adult Learning
(5 cr) ·········· ⌄

APEA525 Different Interpretations of Teacherhood (5 cr) ·········· ⌄

APEA530 Adult Education and Structures of the Society (4 cr) ·········· ⌄

APEA535 Citizenship Education as a Challenge for Adult Educator
(5 cr) ·········· ⌄

KTK0006 Studies in Education Administration (1 cr) ·········· ⌄

Biomekaniikan syventävä moduuli   **15+ cr**   BMEKOK ·········· ‹
Detailed description

Select all (22–24 cr)

BMES1000 Motor control and human neuroscience (5 cr) ·········· ⌄

BMES1001 Clinical biomechanics (5 cr) ·········· ⌄

BMES1002 Sports biomechanics (5 cr) ·········· ⌄

BMES1004 Neuromuscular system adaptation (4–6 cr) ·········· ⌄

BMES1003 Report Seminar in Biomechanics (3 cr) ·········· ⌄

Crisis and Security module   **25 cr**   CRIMODKOK ·········· ‹
Detailed description

Detailed description

Select all (25 cr)

Compulsory course ⟨

Select all (5 cr)

CRIA5001 Crises, Conflicts and Security (5 cr) ⌄

Optional courses ⟨

Select 4 pcs. (20 cr / 25 cr)

FILA510 Ethics of Global Responsibility (5 cr) ⌄

POLS3012 Conflict in World Politics (5 cr) ⌄

YKPS3102 Migration Policy (5 cr) ⌄

DEVS3015 Current Trends in Development Policy (5 cr) ⌄

YKPS3101 Sustainable Development as a Societal Challenge (5 cr) ⌄

Digital Life module   25 cr   DIGMODKOK ⟨

Detailed description

Select all (25 cr)

DIGS5001 Digitalisation, Everyday Life and Life Course (5 cr) ⌄

DIGS5002 Digitalisation, Society and Communities (5 cr) ⌄

FILY4002 Information Ethics (5 cr) ⌄

SOSS3102 Social Media, Social Movements and Activism (5 cr) ⌄

DIGS5003 Social Services and Digitalisation (5 cr) ⌄

Ethics module   15–30 cr   ETIMODKOK ⟨

Detailed description

Select all (15–30 cr)

Ydinopinnot ⟨

Select all (10 cr)

EKTA2007 Well-being and the good life (5 cr) ⌄

FILA140 Philosophical Ethics (5 cr) ⌄

Valinnaiset opinnot ⟨

Select 1–4 pcs. (5–20 cr / 45 cr)

FILA410 Social Ethics (5 cr) ⌄

FILY4001 Ethics of Science (5 cr) ⌄

FILY028 Ethics and Economics (5 cr) ⌄

FILA510 Ethics of Global Responsibility (5 cr) ⌄

FILA406 Environmental Ethics (5 cr) ⌄

FILY4002 Information Ethics (5 cr) ⌄

YKPS321 Normative Foundations (5 cr) ⌄

FILA5001 History of Ethics (5 cr) ⌄

FILA5002 Classics of Ethics (5 cr) ⌄

Life Stages and Life Course module   15–25 cr   IKEMODKOK ⟨

Detailed description

Select 15–25 cr

SOSS3105 Sociology of the Age, Life Stages and the Life Course (5 cr) ⌄

IKAM5002 Finnish Life Stage Studies (5 cr) ⌄

IKAM5003 Ageing Society (5 cr) ⌄

IKAM5001 Youth and Generations (5 cr) ⌄

IKAM5004 Childhood Studies (5 cr) ⌄

Intermediate Studies in Management and Leadership as Optional Studies ‹

36 cr   YJOAIN

[Detailed description](#)

Select all (36+ cr)

Compulsory Studies ‹

Select all (12 cr)

- [YJOA3110 Strategic Management (6 cr)](#) ⌄
- [YJOA2170 Basics of Human Resources Management (6 cr)](#) ⌄

Optional studies ‹

Select min. 24 cr

- [YJOA2120 Wellbeing and Management (6 cr)](#) ⌄
- [YJOA2130 Management and Personnel Training and Development (6 cr)](#) ⌄
- [YJOA2140 Business and Leadership Ethics (5 cr)](#) ⌄
- [YJOA2160 Relationship between work and family (4 cr)](#) ⌄
- [PSYP130 Personality Psychology I (5 cr)](#) ⌄
- [PSYA130 Personality Psychology II (5 cr)](#) ⌄
- [PSYA151 Work and Organization Psychology II (5 cr)](#) ⌄
- [YJOA2180 Career and Recruitment (4 cr)](#) ⌄
- [JSBA7140 Project Management (5 cr)](#) ⌄
- [JSBA5110 Business in Asia (4 cr)](#) ⌄
- [CNS-A4 The development of the competitive advantage of co-operatives (5 cr)](#) ⌄
- [CNS-P4 Co-operative business and management (5 cr)](#) ⌄
- [CNS-P3 Co-operative values and principles as applied in different forms of enterprise (5 cr)](#) ⌄

Intermediate studies in Education as Optional Studies   **40 cr** ‹

KASAINERI

[Detailed description](#)

Select all (40 cr)

Sisältöopinnot ‹

Select all (20 cr)

- [KAIA1022 Philosophy of Education and the Philosophical Foundations of Research (5 cr)](#) ⌄
- [KAIA032 The Social Change of Education and Schooling (5 cr)](#) ⌄
- [KAIA042 Perspectives on Learning and Development (5 cr)](#) ⌄
- [KAIA052 Agency and Identity in Different Life Domains (5 cr)](#) ⌄

Tutkimusmenetelmäopinnot ‹

Select 10 cr / 20 cr

- [KTKA2010 The Construction of Scientific Knowledge: Qualitative Research Methods (5 cr)](#) ⌄
- [KTKA2020 The Construction of Scientific Knowledge: Quantitative research methods (5 cr)](#) ⌄
- [KTKA2011 The Construction of Scientific Knowledge: Qualitative Research Methods, Proficiency Test (5 cr)](#) ⌄
- [KTKA2021 The Construction of Scientific Knowledge: Quantitative research methods, Profiency Test (5 cr)](#) ⌄

Tutkielmaopinnot ‹

Tutkielmaopinnot ⌄

Select 10 cr / 20 cr

　　KASA4200 Proseminar (9 cr) ⌄
　　LIB1THP Introduction to Information Seeking (1 cr) ⌄
　　KASA3283 Practicum: Familiarizing with educational work environments (5 cr) ⌄
　　KLAA4100 Overview of Educational Research (5 cr) ⌄

Sustainable Societies module　25–40 cr　KYHMODKOK ⟨

[Detailed description](#)

Select 25–40 cr

Ydinopinnot ⟨

Select all (15 cr)

　　KKEA5004 Introduction to Sustainability (5 cr) ⌄
　　SOSS3106 Environmental Sociology (5 cr) ⌄
　　YKPS3101 Sustainable Development as a Societal Challenge (5 cr) ⌄

Laajennetut opinnot ⟨

Select 10–25 cr

　　YKPA363 Food (5 cr) ⌄
　　KKES5002 Energy and Society (5 cr) ⌄
　　SOSS3109 Climate change and society (5 cr) ⌄
　　SOSS3103 Consumption and Way of Life (5 cr) ⌄
　　FILA406 Environmental Ethics (5 cr) ⌄

Study Module in Accounting　25 cr　YLAAOK ⟨

[Detailed description](#)

Select all (25 cr)

　　YLAA3110 Financial Accounting (6 cr) ⌄
　　YLAA2110 Cost Accounting (7 cr) ⌄
　　YLAA3120 Financial Accounting and Taxation (6 cr) ⌄
　　YLAA2120 Management Control (6 cr) ⌄

Liikuntafysiologian syventävä moduuli　16+ cr　LFYKOK ⟨

[Detailed description](#)

Select all (16–18 cr)

　　LFYS1000 Acute physiological responses and chronic adaptations to physical training (5 cr) ⌄
　　LFYS1100 Advanced cell and molecular biology (5 cr) ⌄
　　LFYS1001 Exercise physiology in different environments (2 cr) ⌄
　　BMES1004 Neuromuscular system adaptation (4–6 cr) ⌄

Intermediate Study Module in Marketing　26 cr　YMAAOK ⟨

[Detailed description](#)

Select all (26+ cr)

Pakolliset opintojaksot ⟨

Select all (12 cr)

　　YMAA2110 Consumer Behavior (6 cr) ⌄
　　YMAA2120 Managing Customer Relationships and Services (6 cr) ⌄

Optional studies ⟨

Select min. 14 cr

YMAA2130 Marketing management (5 cr) ⌄

YMAA2140 International Marketing (5 cr) ⌄

YMAA2150 Productisation and Selling (5 cr) ⌄

YMAA2170 Social Marketing (4–6 cr) ⌄

YMAA3220 Digital Marketing (6 cr) ⌄

Intermediate Studies in Mathematics as Optional Studies   35+ cr
MATAIN   ‹

Detailed description

Select 1 pcs. (35+ cr)

Matematiikan aineopinnot kun perusopinnot tehty vaihtoehto A:n mukaan   ‹

Select all (35+ cr)

Pakolliset opinnot   ‹

Select all (24 cr)

MATA171 Introduction to mathematical analysis 1 (5 cr) ⌄

MATA172 Introduction to mathematical analysis 2 (5 cr) ⌄

MATA173 Introduction to mathematical analysis 3 (5 cr) ⌄

MATA181 Vector calculus 1 (5 cr) ⌄

MATA182 Vector calculus 2 (4 cr) ⌄

Valinnaisia opintoja   ‹

Select min. 11 cr

MATA114 Ordinary Differential Equations (4 cr) ⌄

MATA120 Number Fields (4 cr) ⌄

MATA122 Linear Algebra and Geometry 2 (4 cr) ⌄

MATA125 Matrix Analysis (4 cr) ⌄

MATA128 Euclidean Plane Geometry (4 cr) ⌄

MATA132 How to Prove It? (4 cr) ⌄

MATA140 Introduction to Discrete Mathematics (4 cr) ⌄

MATA150 Logic (4 cr) ⌄

MATA151 Number Theory 1 (4 cr) ⌄

MATA174 Introduction to mathematical analysis 4 (5 cr) ⌄

MATA221 Algebra 1: Groups (5 cr) ⌄

MATA222 Algebra 1: Rings and Fields (5 cr) ⌄

MATA229 Cryptography (4 cr) ⌄

MATA230 Geometry (5 cr) ⌄

MATA6350 Differential geometry of curves and surfaces (5–7 cr) ⌄

MATA255 Vector Analysis 1 (4 cr) ⌄

MATA256 Vector Analysis 2 (4 cr) ⌄

MATA271 Stochastic Models (4 cr) ⌄

MATA280 Foundations of stochastics (5 cr) ⌄

MATA320 Fourier series (4 cr) ⌄

MATA321 Calculus of Variations (5 cr) ⌄

TILA1200 Probability 1 (5 cr) ⌄

TILA1300 Probability 2 (4 cr) ⌄

MATA1800 Practice essay in intermediate studies (1–3 cr) ⌄

MATA1470 Computer-aided Mathematics (symbolic) (2 cr) ⌄

MATA123 Computational Linear Algebra and Geometry (2 cr) ⌄

MATA218 Advanced Differential Equations 1 (4 cr) ⌄

MATA218 Advanced Differential Equations 1 (4 cr)   ✓

MATA310 Introduction to Dynamical Systems (4 cr) ------------ ✓

MATA2500 Information Theory (2–6 cr) -------------------- ✓

MATA200 Complex Calculus (5 cr) ----------------------- ✓

Any course unit

Matematiikan aineopinnot B ----------------------- ‹

Select all (35+ cr) ☐

Pakolliset opinnot -------------------------------- ‹

Select all (9 cr)

MATA181 Vector calculus 1 (5 cr) ---------------------- ✓

MATA182 Vector calculus 2 (4 cr) --------------------- ✓

Valinnaisia opintoja ----------------------------- ‹

Select min. 26 cr ☐

MATA114 Ordinary Differential Equations (4 cr) -------- ✓

MATA120 Number Fields (4 cr) ------------------------ ✓

MATA122 Linear Algebra and Geometry 2 (4 cr) --------- ✓

MATA125 Matrix Analysis (4 cr) ---------------------- ✓

MATA128 Euclidean Plane Geometry (4 cr) ------------- ✓

MATA140 Introduction to Discrete Mathematics (4 cr) -- ✓

MATA150 Logic (4 cr) ------------------------------- ✓

MATA151 Number Theory 1 (4 cr) --------------------- ✓

MATA174 Introduction to mathematical analysis 4 (5 cr) ----- ✓

MATA221 Algebra 1: Groups (5 cr) -------------------- ✓

MATA222 Algebra 1: Rings and Fields (5 cr) ---------- ✓

MATA230 Geometry (5 cr) ---------------------------- ✓

MATA255 Vector Analysis 1 (4 cr) -------------------- ✓

MATA256 Vector Analysis 2 (4 cr) -------------------- ✓

MATA271 Stochastic Models (4 cr) -------------------- ✓

MATA280 Foundations of stochastics (5 cr) ----------- ✓

MATA320 Fourier series (4 cr) ----------------------- ✓

TILA1300 Probability 2 (4 cr) ----------------------- ✓

TILA1200 Probability 1 (5 cr) ----------------------- ✓

MATA1800 Practice essay in intermediate studies (1–3 cr) --- ✓

MATA1470 Computer-aided Mathematics (symbolic) (2 cr) --- ✓

MATA123 Computational Linear Algebra and Geometry
(2 cr)   ✓

MATA310 Introduction to Dynamical Systems (4 cr) ------ ✓

MATA218 Advanced Differential Equations 1 (4 cr) ------- ✓

MATA2500 Information Theory (2–6 cr) ---------------- ✓

MATA200 Complex Calculus (5 cr) -------------------- ✓

Any course unit

Music and Mind   **15–25 cr**   MMT1KOK --------------- ‹

Detailed description

Select all (15–25 cr)

Basics --- ‹

Select all (10 cr)

MUPA2003 Music psychology (5 cr) ------------------- ✓

MUSA2001 Music Perception and Cognition (5 cr) ------ ✓

Optional Courses -------------------------------- ‹

Select min. 1 pcs. (5–15 cr)

MUSS2001 Music and Neuroscience (5 cr) .... ⌄

MUSS1055 Embodiment in Music (5 cr) .... ⌄

MUPS2001 Research Tools for Multidisciplinary Music
Research (5 cr) ...... ⌄

Music cultures   **15 cr**   MUSKOK .... ‹

[Detailed description](#)

Select all (15 cr)

MUPP2003 Music cultures I: Art music (5 cr) .... ⌄

MUPA2001 Music Cultures 2: Popular Music (5 cr) .... ⌄

MUPA2002 Music Cultures 3: World Music (5 cr) .... ⌄

Intermediate Studies in Psychology as Optional Studies   **35+ cr**   ...... ‹
PSYAINERI

[Detailed description](#)

Select all (35+ cr)

PSYA110 Developmental Psychology II (5 cr) .... ⌄

PSYA120 Neuropsychology II (5 cr) .... ⌄

PSYA130 Personality Psychology II (5 cr) .... ⌄

PSYA140 Clinical Psychology II (5 cr) .... ⌄

PSYA151 Work and Organization Psychology II (5 cr) .... ⌄

Valinnaiset opinnot .... ‹

Select min. 10 cr

PSYA180 Geropsychology (5 cr) .... ⌄

PSYA170 Cognitive Psychology and Neuroscience II (5 cr) ... ⌄

PSYA1901 Special Studies in Psychology (1–20 cr) .... ⌄

PSYA5005 Preventions and Interventions for Violence in Close
Relationships (5 cr) ...... ⌄

PSYA1904 PALOMA-training (1–5 cr) .... ⌄

Art and Wellbeing   **15+ cr**   MUT101KOK .... ‹

[Detailed description](#)

Select all (30 cr)

MUTA1101 Applied Arts (5 cr) .... ⌄

MUTA1102 Cultural Studies in Mental Health (5 cr) .... ⌄

KIKS1206 Writing and Personality, Pedagogy, Wellbeing (5 cr) ... ⌄

MUTS1101 Arts and Wellbeing (5 cr) .... ⌄

MUTA2001 Introduction to Music Therapy (5 cr) .... ⌄

MKAA2007 Music and Wellbeing (5 cr) .... ⌄

Terveystieteiden opintokokonaisuus II   **30 cr**   TTIKOB .... ‹

[Detailed description](#)

Select all (30 cr)

Kaikille yhteiset opinnot .... ‹

Select all (22 cr)

FTEM1001 Interdisciplinary Theories and Background for
Rehabilitation (5 cr) ...... ⌄

KTEY013 Assessing Functional Capacity in Health Sciences
(3 cr) ...... ⌄

TTIA1002 Planning Interventions for Health Behaviour Change
(6 cr) ...... ⌄

KTEA012 Athlete's Health (4 cr) .... ⌄

KTEA013 Physical Activity and Ageing (4 cr)   ⌄

Valinnaiset opinnot   ‹

Select 8 cr / 40 cr

Teema: kuntoutus   ‹

Select 2–8 cr / 24 cr

FTES1001 Scientific Basis and Evidence of Therapeutic Exercise (4 cr)   ⌄

FTES1006 Research on Councelling and Behaviour Change (5 cr)   ⌄

FTES1007 Research and Development of Rehabilitation (1–5 cr)   ⌄

TGES008 Gerontological Rehabilitation (3 cr)   ⌄

FTEM2001 Planning of Rehabilitation Services (5 cr)   ⌄

FTEM2002 Development of Rehabilitation Services (2 cr)   ⌄

Teema: ikääntyminen   ‹

Select 3–8 cr / 13 cr

GERS1007 Health and Morbidity in Older Age (5 cr)   ⌄

GERS1008 Special Issues in Ageing (5 cr)   ⌄

TGES008 Gerontological Rehabilitation (3 cr)   ⌄

Teema: liikuntalääketiede   ‹

Select 3–8 cr / 16 cr

LLTS1003 Physical Activity and Cardiometabolic Diseases (Lectures) (4 cr)   ⌄

LLTS1004 Physical Activity and Musculoskeletal, Pulmonary, Oncological, Mental and Neurological Diseases (Lectures) (4 cr)   ⌄

LLTS009 Health Science and Technology (3 cr)   ⌄

LLTS010 Physical Activity Assessment (5 cr)   ⌄

Teema: terveyden edistäminen   ‹

Select 2–8 cr

TERS1007 Management Strategies in Health Promotion (2 cr)   ⌄

TERS1008 Settings-Based Health Promotion (2 cr)   ⌄

TERS1009 Communication Strategies and Advocacy in Health Promotion (2 cr)   ⌄

TERS1010 Digital Solutions in Health Promotion (2 cr)   ⌄

Muut valinnaiset opinnot   ‹

Select 4–8 cr / 31 cr

LLTY011 Nutrition and Physical Exercise (Lecture Course) (3–4 cr)   ⌄

TTIP1005 Nutrition, Health and Physical Exercise (2–6 cr)   ⌄

BMES1001 Clinical biomechanics (5 cr)   ⌄

TTIY1006 Internship (Bachelor Studies) (6–16 cr)   ⌄

Intermediate Studies in Statistics as Optional Studies   **35+ cr**   ‹
TILAINERI

Detailed description

Select all (32+ cr)

Pakolliset opinnot   ‹

Pakolliset opinnot ⌄

Select all (31–34 cr)

TILA311 Generalized Linear Models 1 (2–5 cr) ⌄
TILA141 Statistical Inference 1 (5 cr) ⌄
TILA142 Statistical Inference 2 (5 cr) ⌄
TILA312 Generalized Linear Models 2 (5 cr) ⌄
TILA350 Bayes Statistics 1 (5 cr) ⌄

Selection group

Select 1 pcs. (9 cr / 18 cr)

Selection group

Select all (9 cr)

TILA1200 Probability 1 (5 cr) ⌄
TILA1300 Probability 2 (4 cr) ⌄

Selection group

Select all (9 cr)

MATA2600 Basic course in probability (4 cr) ⌄
TILA2700 Further probability (5 cr) ⌄

Optional studies ⌃

Select min. 1 cr

TILP350 SPSS Course (2 cr) ⌄
TILA420 SAS Course (2 cr) ⌄
TILS644 Multivariate Statistical Methods (2–5 cr) ⌄
MATA280 Foundations of stochastics (5 cr) ⌄
TILS1510 Missing data (2–5 cr) ⌄
TILS1500 Causal models (2–5 cr) ⌄
TILS120 Matrix Calculation in Statistics (4 cr) ⌄
TILS210 Survival Models (2–5 cr) ⌄
TILS221 Statistics in Epidemiological Research (4 cr) ⌄
TILS2300 Mixed Models and Longitudinal Data Analysis (2–5 cr) ⌄
TILS600 Spatial Data Analysis (4 cr) ⌄
TILS619 Time Series Analysis (2–5 cr) ⌄
TILS646 Clustering, Classification and Regression Methods (4–5 cr) ⌄
TILS655 Design of Experiment (5 cr) ⌄
TILS661 Sampling Methods (4–5 cr) ⌄
TILS664 Estimation Methods of Population Size and Population Dynamics (4 cr) ⌄
TILS666 History of Statistics (4 cr) ⌄
TILS800 Statistics in Society (1–3 cr) ⌄
Any course unit

Futures Studies **25 cr** TUTOK ⌃

Detailed description

Select all (25 cr)

JSBA4110 TUTU1 Tulevaisuusajattelu ja skenaariot (5 cr) ⌄
JSBS4120 TUTUS2 Tulevaisuudentutkimuksen menetelmät (5 cr) ⌄
JSBS4130 TUTUS3 Tulevaisuudentutkimuksen menetelmien ⌄

soveltaminen (5 cr)

JSBS4140 TUTUS4 Tulevaisuudentutkimuksen tieteellinen perusta (5 cr) ⌄

JSBA4150 TUTU5 Vaihtuvateemainen tulevaisuudentutkimuksen opintojakso (5 cr) ⌄

Working Life Communication **15+ cr** XTYO2020MUU ⌃

Detailed description

Select min. 15 cr

XPVX002 Job Wellness from Interaction (3 cr) ⌄
XPV0011 Speech Communication/Negotiation Skills (5 cr) ⌄
XYHX008 Multilingual Argumentation and Debate (3 cr) ⌄
XPVB1000 Workplace conflict communication (3–5 cr) ⌄
XPVB1001 Communication and cooperation in teams (3–5 cr) ⌄
XPVB1002 Meetings and communication (2 cr) ⌄
XPVB1003 Manager's Communication Competence (3–5 cr) ⌄
XYHX1004 Project communication (5 cr) ⌄
XYHX1005 Multilingual and Intercultural Communication Competence (5 cr) ⌄
XRAT004 Français professionnel (4 cr) ⌄

Work Life Communication Skills ⌃

Select 0–1 pcs. (0–5 cr / 9 cr)

XPVX003 Speech Communication and Work Life (4–5 cr) ⌄
XKVX002 Text Skills in Working Life (4 cr) ⌄

Work and Working Life Research module **25–36 cr**
TYOMODKOK ⌃

Detailed description

Select all (25–36 cr)

Ydinopinnot ⌃

Select all (15 cr)

TYOA5001 Work and Employment Policy (5 cr) ⌄
TYOA5002 Labor Markets and Processes (5 cr) ⌄
TYOA5003 Changing Work and Labour Markets (5 cr) ⌄

Valinnaiset opinnot ⌃

Select 10–21 cr

YKPA470 Family, Care and Social Policy (5 cr) ⌄
YKPS3102 Migration Policy (5 cr) ⌄
SOSA2012 Economic Sociology (5 cr) ⌄
YJOA2170 Basics of Human Resources Management (6 cr) ⌄

Vapaasti valittavat opintokokonaisuudet ja moduulit ⌃

Select min. 0 pcs. (0+ cr)

Any study module

Communication and Language Studies **0+ cr** XVIEKIE_VAPAA ⌃

Detailed description

Select min. 0 cr

Any course unit

Other Studies **0+ cr** TEKMAMUU ⌃

Detailed description

Select all (0+ cr)

Vapaasti valittavat opintojaksot .... ‹

Select min. 0 cr

Any course unit

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