Metropolia

Degree Certificate

No. 2112923

Technology, Communication and Transport

Siddhartha Lama

has completed the degree of

Tekniikan ammattikorkeakoulututkinto, Bachelor of Engineering (240 cr)

in the Degree Programme in Information Technology

in accordance with the Act of Parliament on Universities of Applied Sciences (932/2014).

The degree entitles the holder to use the Ministry of Education and Culture authorised title of

Insinööri (AMK), Bachelor of Engineering.

The achieved credits are assessed in the supplement.

Espoo 18 June 2024

Riitta Konkola
President

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Unique identifier for this document:
66372685-346a-48b2-a3ca-7637402f6ec2

Student	**Siddhartha Lama**	Graduated 18.06.2024	
	2112923		
Programme	Degree Programme in Information Technology	Credits	**240 cr**
		Completed	**296 cr**

Studies	Credits	Assessment
Orientation to Information Technology	**60 cr**	
Mobiles	15 cr k1	H Pass
Linux and Networks	15 cr k1	H Pass
Smart Devices	15 cr k1	H Pass
Orientation	15 cr k1	H Pass
Fundamental Professional Studies	**33 cr**	
Basics of Smart IoT Systems	**33 cr**	
Basics of Smart IoT Systems	**33 cr**	
Switching, Routing and Wireless Essentials	5 cr	5 Excellent
Object-Oriented Programming in IoT Devices	5 cr	3 Good
Enterprise Networking, Security and Automation	5 cr	4 Very good
Probability and Statistics	5 cr k1	H Pass
Cryptography	5 cr s1	3 Good
Engineering Mathematics III	3 cr s2	H Pass
Programming in C	3 cr s3	H Pass
Embedded C-Programming	2 cr s4	3 Good
Advanced Professional Studies	**60 cr**	
Smart IoT Systems	**60 cr**	
Smart IoT Systems	**30 cr**	
IoT Connecting Things	5 cr	5 Excellent
Modern Computer Architecture	5 cr	5 Excellent
Mathematics and Physics for IoT	5 cr k1	H Pass
Linux Servers and Databases	5 cr	5 Excellent
Digital Communication	5 cr s5	2 Very satisfactory
Sensor Physics	5 cr	5 Excellent
Embedded IoT Devices	**20 cr**	
Seminar on Automation Technology	3 cr s6	H Pass
Special Topics in Telecommunication	2 cr s7	H Pass
Digital Signal Processing	5 cr k1	H Pass
Internet of Things	5 cr	3 Good
ARM-Processors and Embedded Operating Systems	5 cr	2 Very satisfactory
IoT and Networks	**10 cr**	
IoT Security	5 cr	4 Very good
Internet of Things (IoT) Project	5 cr	5 Excellent
Innovation Studies	**15 cr**	
Innovation Project	10 cr	5 Excellent
Methodological Studies	5 cr k2	H Pass
Language Studies	**25 cr**	
Finnish for Foreigners 1	5 cr	H Pass
Finnish for Foreigners 2	5 cr	H Pass
Finnish 1	5 cr k3	H Pass
Finnish 2	5 cr k4	H Pass
Finnish for Foreigners 3	5 cr	H Pass
Elective Studies	**58 cr**	
Linux-Basics	3 cr	H Pass
C - Programming	3 cr	H Pass

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		Completed	**296 cr**

Studies	**Credits**		**Assessment**
Microsoft Azure	5 cr	H	Pass
Python Programming	3 cr	H	Pass
Time Management	2 cr	4	Very good
Towards YKI 2 (A2)	2 cr	H	Pass
Amazon Cloud Foundation	5 cr	5	Excellent
Discrete Mathematics	3 cr	H	Pass
Probability and Statistics	3 cr	H	Pass
Introduction to Artificial Intelligence	3 cr	H	Pass
Artificial Intelligence with Python	3 cr	H	Pass
How to become a youtuber?	5 cr	H	Pass
Experimentality in Didactic Physics I	5 cr s8	4	Very good
Software Test Automation for Embedded Systems	5 cr	5	Excellent
Software Automation using Robot Framework	3 cr	H	Pass
Managing Linux Systems with Embedded Perspective	5 cr	4	Very good
Work Placement	**30 cr**		
Work Placement 1	15 cr	H	Pass
Work Placement 2	15 cr	H	Pass
Bachelor's Thesis	**15 cr**		
Planning of the Thesis Work	5 cr	5	Excellent
Execution of the Thesis Work	5 cr	5	Excellent
Reporting of the Thesis and Maturity Test	5 cr	5	Excellent

Thesis	**Assessment**	**Assessment date**
Greenhouse Automation and Monitoring	5	27.12.2023

Compensated studies

k1 = Bachelor of Electronics and Communication Engineering, 20.2.2010, Pokhara University

k2 = Master's Thesis, 17.6.2013, University of Vaasa

k3 = Corresponding Studies, 3.4.2020, Galimatias

k4 = Corresponding Studies, 24.3.2021, Galimatias

Inclusions

s1 = Cryptography, 29.3.2011 , University of Vaasa
Cryptography 5 cr, (3), 29.3.2011, University of Vaasa

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Engineering Mathematics III 3 cr, (H), 20.2.2010, Pokhara University

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Digital Communication 5 cr, (2), 13.12.2011, University of Vaasa

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Seminar on Automation Technology 3 cr, (H), 11.1.2012, University of Vaasa

s7 = Special Topics in Telecommunication, 13.6.2013 , University of Vaasa
Special Topics in Telecommunication 2 cr, (H), 13.6.2013, University of Vaasa

s8 = Experimentality in Didactic Physics I, 28.10.2020 , University of Helsinki
Experimentality in Didactic Physics I 5 cr, (4), 28.10.2020, University of Helsinki

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Student	**Siddhartha Lama**	Graduated 18.06.2024	
	2112923		
Programme	Degree Programme in Information Technology	Credits	**240 cr**
		Completed	**296 cr**

The language of the degree programme was English. The graduate has taken the maturity test included in the final year project in English. The graduate has acquired such oral and written English skills that are necessary for practising their profession and for further professional development (Decree 1129/2014, 7 §). The graduate's school education was completed in a language other than Finnish or Swedish, or abroad. Therefore, they were exempted from the requirement of Finnish or Swedish as specified in Decree (1129/2014, 7 § and Act 424/2003, amended by 693/2016, 6 §).

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Tutkintotodistus

Nro 2112923

Tekniikan ja liikenteen ala

Siddhartha Lama

on suorittanut ammattikorkeakouluopinnoista annetun lain (932/2014) mukaisen

tekniikan ammattikorkeakoulututkinnon (240 op)

Degree Programme in Information Technology tutkinto-ohjelmassa

Tutkinto oikeuttaa käyttämään opetus- ja kulttuuriministeriön vahvistamaa tutkintonimikettä

Insinööri (AMK).

Suoritetut opinnot arvosanoineen ilmenevät tämän todistuksen liitteestä.

Espoossa 18. kesäkuuta 2024

Riitta Konkola
rehtori

Tämä todistus on allekirjoitettu sähköisesti.
Dokumentin tunniste:
66372685-346a-48b2-a3ca-7637402f6ec2

Opiskelija **Siddhartha Lama** Valmistunut 18.06.2024

2112923

Ohjelma Degree Programme in Information Technology Laajuus **240 op**

Suoritettu **296 op**

Opinnot	Laajuus		Arviointi
Orientaatio tieto- ja viestintätekniikkaan	**60 op**		
Mobiililaitteet	15 op	k1	H Hyväksytty
Linux ja tietoverkot	15 op	k1	H Hyväksytty
Älykkäät laitteet	15 op	k1	H Hyväksytty
Orientaatio	15 op	k1	H Hyväksytty
Suuntaavat ammattiopinnot	**33 op**		
Älykkäiden IoT-järjestelmien perusteet	**33 op**		
Älykkäiden IoT-järjestelmien perusteet	**33 op**		
Reitityksen, kytkennän ja langattomien verkkojen perusteet	5 op		5 Kiitettävä
IoT-laitteiden olio-ohjelmointi	5 op		3 Hyvä
Yritysverkkojen konfigurointi, tietoturva ja automaatio	5 op		4 Erittäin hyvä
Todennäköisyys ja tilastomatematiikka	5 op	k1	H Hyväksytty
Cryptography	5 op	s1	3 Hyvä
Engineering Mathematics III	3 op	s2	H Hyväksytty
Programming in C	3 op	s3	H Hyväksytty
Embedded C-Programming	2 op	s4	3 Hyvä
Syventävät ammattiopinnot	**60 op**		
Älykkäät IoT-järjestelmät	**60 op**		
Älykkäät IoT-järjestelmät	**30 op**		
IoT-laitteiden liitännät	5 op		5 Kiitettävä
Moderni tietokoneen arkkitehtuuri	5 op		5 Kiitettävä
IoT:n matematiikka ja fysiikka	5 op	k1	H Hyväksytty
Linux-palvelimet ja tietokannat	5 op		5 Kiitettävä
Digital Communication	5 op	s5	2 Erittäin tyydyttävä
Anturifysiikka	5 op		5 Kiitettävä
Sulautetut IoT-laitteet	**20 op**		
Seminar on Automation Technology	3 op	s6	H Hyväksytty
Special Topics in Telecommunication	2 op	s7	H Hyväksytty
Digitaalinen signaalinkäsittely	5 op	k1	H Hyväksytty
Laitteiden internet	5 op		3 Hyvä
ARM-prosessorit ja sulautetut käyttöjärjestelmät	5 op		2 Erittäin tyydyttävä
IoT ja tietoverkot	**10 op**		
IoT tietoturva	5 op		4 Erittäin hyvä
Internet of Things (IoT) projekti	5 op		5 Kiitettävä
Innovaatio-opinnot	**15 op**		
Innovaatioprojekti	10 op		5 Kiitettävä
Menetelmäopinnot	5 op	k2	H Hyväksytty
Kieliopinnot	**25 op**		
Finnish for Foreigners 1	5 op		H Hyväksytty
Finnish for Foreigners 2	5 op		H Hyväksytty
Suomi 1	5 op	k3	H Hyväksytty
Suomi 2	5 op	k4	H Hyväksytty
Finnish for Foreigners 3	5 op		H Hyväksytty
Valinnaiset ja vapaasti valittavat opinnot	**58 op**		
Linux-Basics	3 op		H Hyväksytty
C - Programming	3 op		H Hyväksytty

Opiskelija **Siddhartha Lama** Valmistunut 18.06.2024

2112923

Ohjelma Degree Programme in Information Technology Laajuus **240 op**

Suoritettu **296 op**

Opinnot	**Laajuus**		**Arviointi**
Microsoft Azure	5 op		H Hyväksytty
Python Programming	3 op		H Hyväksytty
Time Management	2 op		4 Erittäin hyvä
Kohti YKIÄ 2 (A2)	2 op		H Hyväksytty
Amazon-pilvipalvelun perusteet	5 op		5 Kiitettävä
Discrete Mathematics	3 op		H Hyväksytty
Todennäköisyys ja tilastomatematiikka	3 op		H Hyväksytty
Introduction to Artificial Intelligence	3 op		H Hyväksytty
Artificial intelligence with Python	3 op		H Hyväksytty
How to become a youtuber?	5 op		H Hyväksytty
Experimentality in Didactic Physics I	5 op	s8	4 Erittäin hyvä
Sulautetun järjestelmän testiautomaatio	5 op		5 Kiitettävä
Software Automation using Robot Framework	3 op		H Hyväksytty
Sulautettujen Linux-järjestelmien hallinnointi	5 op		4 Erittäin hyvä
Harjoittelu	**30 op**		
Harjoittelu 1	15 op		H Hyväksytty
Harjoittelu 2	15 op		H Hyväksytty
Opinnäytetyö	**15 op**		
Opinnäytetyön suunnittelu	5 op		5 Kiitettävä
Opinnäytetyön toteutus	5 op		5 Kiitettävä
Opinnäytetyön raportointi ja kypsyysnäyte	5 op		5 Kiitettävä

Opinnäytetyö	**Arviointi**	**Arviointipäivämäärä**
Greenhouse Automation and Monitoring	5	27.12.2023

Korvaavat suoritukset

k1 = Bachelor of Electronics and Communication Engineering, 20.2.2010, Pokhara University

k2 = Master's Thesis, 17.6.2013, Vaasan yliopisto

k3 = Vastaavat opinnot, 3.4.2020, Galimatias

k4 = Vastaavat opinnot, 24.3.2021, Galimatias

Sisältyvyydet

s1 = Cryptography, 29.3.2011 , Vaasan yliopisto
Cryptography 5 op, (3), 29.3.2011, Vaasan yliopisto

s2 = Engineering Mathematics III, 20.2.2010 , Pokhara University
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Digital Communication 5 op, (2), 13.12.2011, Vaasan yliopisto

s6 = Seminar on Automation Technology, 11.1.2012 , Vaasan yliopisto
Seminar on Automation Technology 3 op, (H), 11.1.2012, Vaasan yliopisto

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Special Topics in Telecommunication 2 op, (H), 13.6.2013, Vaasan yliopisto

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Opiskelija	**Siddhartha Lama**	Valmistunut 18.06.2024	
	2112923		
Ohjelma	Degree Programme in Information Technology	Laajuus	**240 op**
		Suoritettu	**296 op**

Tutkinto on suoritettu englannin kielellä. Tutkinnon suorittanut on kirjoittanut opinnäytetyöhön sisältyvän kypsyysnäytteen englannin kielellä. Hän on saavuttanut englannin kielessä sellaisen suullisen ja kirjallisen taidon, joka ammatin harjoittamisen ja ammatillisen kehityksen kannalta on tarpeellinen (asetus 1129/2014, 7 §). Tutkinnon suorittanut on vapautettu ammattikorkeakouluista annetun asetuksen (1129/2014, 7 §) ja julkisyhteisöjen henkilöstöltä vaadittavasta kielitaidosta annetun lain (424/2003, muut. 693/2016, 6 §) mukaisista suomen ja ruotsin kielen kielitaitovaatimuksista, koska hänen koulusivistyskielensä on muu kuin suomi tai ruotsi.

Student	**Siddhartha Lama**	Graduated 18.06.2024	
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Studies	Credits	Assessment
Orientation to Information Technology	**60 cr**	
Mobiles	15 cr k1	H Pass
Linux and Networks	15 cr k1	H Pass
Smart Devices	15 cr k1	H Pass
Orientation	15 cr k1	H Pass
Fundamental Professional Studies	**33 cr**	
Basics of Smart IoT Systems	**33 cr**	
Basics of Smart IoT Systems	**33 cr**	
Switching, Routing and Wireless Essentials	5 cr	5 Excellent
Object-Oriented Programming in IoT Devices	5 cr	3 Good
Enterprise Networking, Security and Automation	5 cr	4 Very good
Probability and Statistics	5 cr k1	H Pass
Cryptography	5 cr s1	3 Good
Engineering Mathematics III	3 cr s2	H Pass
Programming in C	3 cr s3	H Pass
Embedded C-Programming	2 cr s4	3 Good
Advanced Professional Studies	**60 cr**	
Smart IoT Systems	**60 cr**	
Smart IoT Systems	**30 cr**	
IoT Connecting Things	5 cr	5 Excellent
Modern Computer Architecture	5 cr	5 Excellent
Mathematics and Physics for IoT	5 cr k1	H Pass
Linux Servers and Databases	5 cr	5 Excellent
Digital Communication	5 cr s5	2 Very satisfactory
Sensor Physics	5 cr	5 Excellent
Embedded IoT Devices	**20 cr**	
Seminar on Automation Technology	3 cr s6	H Pass
Special Topics in Telecommunication	2 cr s7	H Pass
Digital Signal Processing	5 cr k1	H Pass
Internet of Things	5 cr	3 Good
ARM-Processors and Embedded Operating Systems	5 cr	2 Very satisfactory
IoT and Networks	**10 cr**	
IoT Security	5 cr	4 Very good
Internet of Things (IoT) Project	5 cr	5 Excellent
Innovation Studies	**15 cr**	
Innovation Project	10 cr	5 Excellent
Methodological Studies	5 cr k2	H Pass
Language Studies	**25 cr**	
Finnish for Foreigners 1	5 cr	H Pass
Finnish for Foreigners 2	5 cr	H Pass
Finnish 1	5 cr k3	H Pass
Finnish 2	5 cr k4	H Pass
Finnish for Foreigners 3	5 cr	H Pass
Elective Studies	**58 cr**	
Linux-Basics	3 cr	H Pass
C - Programming	3 cr	H Pass

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Microsoft Azure	5 cr	H	Pass
Python Programming	3 cr	H	Pass
Time Management	2 cr	4	Very good
Towards YKI 2 (A2)	2 cr	H	Pass
Amazon Cloud Foundation	5 cr	5	Excellent
Discrete Mathematics	3 cr	H	Pass
Probability and Statistics	3 cr	H	Pass
Introduction to Artificial Intelligence	3 cr	H	Pass
Artificial Intelligence with Python	3 cr	H	Pass
How to become a youtuber?	5 cr	H	Pass
Experimentality in Didactic Physics I	5 cr s8	4	Very good
Software Test Automation for Embedded Systems	5 cr	5	Excellent
Software Automation using Robot Framework	3 cr	H	Pass
Managing Linux Systems with Embedded Perspective	5 cr	4	Very good
Work Placement	**30 cr**		
Work Placement 1	15 cr	H	Pass
Work Placement 2	15 cr	H	Pass
Bachelor's Thesis	**15 cr**		
Planning of the Thesis Work	5 cr	5	Excellent
Execution of the Thesis Work	5 cr	5	Excellent
Reporting of the Thesis and Maturity Test	5 cr	5	Excellent

Thesis	**Assessment**	**Assessment date**
Greenhouse Automation and Monitoring	5	27.12.2023

Compensated studies

k1 = Bachelor of Electronics and Communication Engineering, 20.2.2010, Pokhara University

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The language of the degree programme was English. The graduate has taken the maturity test included in the final year project in English. The graduate has acquired such oral and written English skills that are necessary for practising their profession and for further professional development (Decree 1129/2014, 7 §). The graduate's school education was completed in a language other than Finnish or Swedish, or abroad. Therefore, they were exempted from the requirement of Finnish or Swedish as specified in Decree (1129/2014, 7 § and Act 424/2003, amended by 693/2016, 6 §).

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The purpose of the Diploma Supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.) It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It is free from any value judgements, equivalence statements or suggestions about recognition. This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO.

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1	Family name(s)	Lama
1.2	Given name(s)	Siddhartha
1.3	Date of birth	5.11.1986
1.4	Student identification number	OID: 1.2.246.562.24.58208647026 2112923

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1	Name of qualification and title conferred	Tekniikan ammattikorkeakoulututkinto / Bachelor of Engineering Insinööri (AMK), Bachelor of Engineering
2.2	Main field(s) of study for the qualification	Information and Communication Technologies (ICTs) Degree Programme in Information Technology
2.3	Name and status of awarding institution	Metropolia Ammattikorkeakoulu (Metropolia University of Applied Sciences), state recognised university of applied sciences.
2.4	Name and status of institution administering studies	Not applicable
2.5	Language(s) of instruction/examination	English

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1	Level of qualification	See 8. First-cycle higher education degree (bachelor level)
3.2	Official duration of programme in credits and years	The degree consists of 240 credits (4 years of full time study). Finnish credits are fully compatible with the ECTS.
3.3	Access requirement(s)	See 8. There is numerus clausus, i.e. restricted entry, to all fields of study.

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1	Mode of study	Full-time
4.2	Programme learning outcomes	See Transcript of Records. Structure of studies leading to a first-cycle university of applied sciences degree: The studies consist of core, professional, elective studies, work placement, Bachelor's Thesis and the maturity test. The general aim of studies leading to a first-cycle university of applied sciences degree is to provide the student with: 1) extensive practical basic skills and knowledge and theoretical foundations of these to provide proficiency to operate in expert positions in the field 2) prerequisites for keeping up with and promoting developments in the field 3) a capability for continuous learning 4) sufficient communication and language skills 5) a capability to engage in international activities within the field.

4.3	Programme details (e.g. modules or units studied, and individual grades/marks/credits obtained)	See transcript of records
4.4	Grading scheme and, if available, grade distribution guidance	5 = Excellent 4 = Very good 3 = Good 2 = Very Satisfactory 1 = Satisfactory H = Pass
4.5	Overall classification of the qualification	Not applicable

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1	Access to further study	Eligible for second-cycle higher education studies. The admissions decisions are made in the receiving higher education institution.
5.2	Access to a regulated profession	The degree falls under the Article 11 of the Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualifications, level d or e (d= lower university degree, Bachelor´s degree, e= Master´s degree, licentiate degree, doctoral degree).

6 ADDITIONAL INFORMATION

6.1	Additional information	Not applicable
6.2	Further information sources	Metropolia Ammattikorkeakoulu (Metropolia University of Applied Sciences), Student and Admission Services PL 4000 FI - 00079 Metropolia Tel. +358 9 7424 5000 Fax +358 9 7424 5005 www.metropolia.fi www.minedu.fi, The Ministry of Education and Culture www.oph.fi/recognition, www.oph.fi/qualificationsframework The Finnish National Agency for Education, the ENIC: European Network of Information Centres in the European Region and the NARIC: National Academic Recognition Information Centres in the European Union and the National Coordination Point for the European Qualifications Framework (EQF) www.karvi.fi, The Finnish Education Evaluation Centre

7 CERTIFICATION OF THE SUPPLEMENT

7.1	Date	18.06.2024
7.2	Signature	The document is electronically signed by the President of Metropolia University of Applied Sciences and the document is only valid in its original electronic form with the accompanying electronic signature.
7.3	Capacity	
7.4	Official stamp or seal	

8 INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

The description of the higher education system has been prepared by the Finnish National Agency for Education.

The Finnish education system consists of pre-primary and basic education, general and vocational education and higher education. The compulsory schooling consists of one-year pre-primary education for 6-year-olds and nine-year basic education for children aged 7-16.

Post-compulsory education consists of general and vocational upper secondary education that lead to the national Matriculation Examination (ylioppilastutkinto/studentexamen), vocational upper secondary qualification (ammatillinen perustutkinto/yrkesinriktad grundexamen), further vocational qualification (ammattitutkinto, yrkesexamen) and specialist vocational qualification (erikoisammattitutkinto/specialyrkesexamen).

Higher education system in Finland

The Finnish higher education system comprises universities (yliopisto/universitet) and universities of applied sciences (ammattikorkeakoulu, AMK/yrkeshögskola, YH). The universities engage both in education and research

and have the right to award doctorates. The universities of applied sciences are multi-field institutions of professional higher education. Universities of applied sciences engage in applied research and development.

First and second cycle higher education studies are measured in credits (opintopiste/studiepoäng). Study courses are quantified according to the work load required. One year of full-time study is equivalent to 1600 hours of student work on average and is defined as 60 credits. The credit system complies with the European Credit Transfer and Accumulation System (ECTS).

Higher education qualifications in Finland are referenced at levels 6, 7 and 8 both in the National Qualifications Framework as well as in the European Qualifications Framework.

University degrees

The Government Decree on University Degrees and Specialisation Studies (794/2004 including amendments) defines the objectives, extent and overall structure of degrees. The universities decide on the detailed contents and structure of the degrees they award. They also decide on their curricula and forms of instruction.

First-cycle university degree

The first cycle university degree consists of at least 180 credits (three years of full-time study). The degree is called kandidaatti/kandidat in all fields of study except for Law (oikeusnotaari/rättsnotarie) and Pharmacy (farmaseutti/farmaceut). The determined English translation for all of these degrees is Bachelor's degree, the most common degree titles being Bachelor of Arts and Bachelor of Science.

Studies leading to the degree provide the student with: (1) knowledge of the fundamentals of the major and minor subjects or corresponding study entities or studies included in the degree programme and the prerequisites for following developments in the field, (2) knowledge and skills needed for scientific thinking and the use of scientific methods or knowledge and skills needed for artistic work, (3) knowledge and skills needed for studies leading to a higher university degree and for life-long learning, (4) a capacity for applying the acquired knowledge and skills to work and in international co-operation, and (5) adequate language and communication skills for working in one's own field and for international work and co-operation.

Studies leading to the degree may include: basic and intermediate studies; language and communication studies, interdisciplinary programmes, and other studies and work practice for professional development. The degree includes a Bachelor's thesis (6 – 10 credits).

The Second-cycle university degree

The second cycle university degree consists of at least 120 credits (two years of full-time study). The degree is usually called maisteri/magister. Other second cycle degree titles are diplomi-insinöörin tutkinto/diplomingenjörexamen (Technology), proviisorin tutkinto /provisorexamen (Pharmacy), arkkitehdin tutkinto/arkitektexamen (Architecture) and maisema-arkkitehdin tutkinto/ landskapsarkitektexamen (Landscape Architecture). The determined English translation for all these degrees is Master's degree, the most common degree titles being Master of Arts and Master of Science. The second cycle university degree title in the fields of Medicine, Veterinary Medicine and Dentistry is lisensiaatti/licentiat, the English title being Licentiate. The admission requirement for the second cycle university degree is a first cycle degree.

In the fields of Medicine and Dentistry the university may arrange the education leading to the second cycle university degree without including a first cycle university degree in the education. In Medicine, the degree consists of 360 credits (six years of full-time study) and in Dentistry the degree consists of 330 credits (five and a half years of full-time study).

Studies leading to the second cycle university degree provide the student with: (1) good overall knowledge of the major subject or a corresponding entity and conversance with the fundamentals of the minor subject or good knowledge of the advanced studies included in the degree programme; (2) knowledge and skills needed to apply scientific knowledge and scientific methods or knowledge and skills needed for independent and demanding artistic work; (3) knowledge and skills needed for independently operating as an expert and developer of the field and for international co-operation; (4) knowledge and skills needed for scientific or artistic postgraduate education and for life-long learning; and (5) good language and communication skills for working in one's own field and for international work and co-operation.

The studies leading to the second cycle university degree may include: basic and intermediate studies and advanced studies, language and communication studies; interdisciplinary studies, other studies, and internship improving expertise. The degree includes a Master's thesis (20 – 40 credits).

Doctoral degrees

The aim of doctoral studies is to provide student with an in-depth knowledge of their field of research and capabilities to produce novel scientific knowledge independently.

The degree of lisensiaatti/licentiat (Licentiate) may be taken before the Doctor's degree and in general it takes two years of full-time study to complete.

The Doctor's degree takes approximately four years to complete after a second cycle degree and two years when completed after a Licentiate's degree. A student who has been admitted to studies leading to Doctor's degree must complete a given amount of studies, show independent and critical thinking in their field of research and write a Doctor's dissertation and defend it in public.

University of applied Sciences degrees

The universities of applied sciences Act (932/2014 including amendments) defines the objectives, extent and overall structure of universities of applied sciences degrees. The universities of applied sciences decide on the detailed contents and structure of the degrees they award. They also decide on their curricula and forms of instruction.

First-cycle university of applied sciences degrees

The first cycle university of applied sciences degree consists of 180, 210, 240 or 270 credits (three to four and a half years of full-time study) depending on the field of study. The first cycle university of applied sciences degree is called ammattikorkeakoulututkinto/yrkeshögskoleexamen. The determined English translation for the degree is Bachelor's degree. The degree titles indicate the field of study, e.g. Bachelor of Engineering and Bachelor of Health Care.

Studies leading to the degree provide the student with: (1) broad overall knowledge and skills with relevant theoretical background for working as expert of the field, (2) knowledge and skills needed for following and advancing developments in the field, (3) knowledge and skills needed for professional development and life-long learning, and (4) adequate language and communication skills for working in one's own field and for international work and co-operation.

The first-cycle university of applied sciences degree comprises basic and professional studies, elective studies, a practical training period and a final project.

The second cycle university of applied sciences degrees

The second cycle university of applied sciences degree consists of 60 or 90 credits (a year or a year and a half of full-time study). The Master of Police Services degree consists of 120 credits. The degree is called ylempi ammattikorkeakoulututkinto/högre yrkeshögskoleexamen. The determined English translation for the degree is Master's degree. The degree titles indicate the field of study, e.g. Master of Culture and Arts or Master of Business Administration.

Studies leading to the degree provide the student with: (1) broad and advanced knowledge and skills for developing the professional field as well as the theoretical skills for working in demanding expert and leadership positions in the field, (2) profound understanding of the field, its relation to working life and society at large as well as the knowledge and skills needed for following and analysing both theoretical and professional developments in the field, (3) capacity for life-long learning and continuous development of one's own expertise , and (4) good language and communication skills for working in one's own field and for international work and co-operation.

The second cycle university of applied sciences degree comprises advanced professional studies, elective studies, and a final project.

Professional specialisation programmes

Universities and universities of applied sciences offer professional specialisation programmes for those who have completed a degree and have already entered working life. Professional specialisation programmes aim to promote professional development and specialisation by means of providing education based on the research.

Provisions on the joint objectives and minimum scope of professional specialisation programmes are issued by government decree. The minimum scope of professional specialisation studies is 30 credits.