



*This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualification (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 should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.*

## 1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- 1.1 Family name(s): Palm
- 1.2 Given name(s): Lars Christian Hovtun
- 1.3 Date of birth (day/month/year): 06-02-1997
- 1.4 Student identification number or code: 605221

## 2 INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1 Name of qualification and (if applicable) title conferred (in original language):  
Master i informatikk: programmering og systemarkitektur  
The title master is protected by law in Norway.
- 2.2 Main field(s) of study for the qualification:
- 2.3 Name and status of awarding institution (in original language):  
Universitetet i Oslo, a public university. The quality assurance system was evaluated and approved by the Norwegian Agency for Quality Assurance in Education in 2014.
- 2.4 Name and status of institution administering studies:  
See section 2.3
- 2.5 Language(s) of instruction/examination:  
Norwegian, English

## 3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

- 3.1 Level of qualification:  
Second Cycle/Level 7, Norwegian Qualifications Framework for Lifelong Learning
- 3.2 Official length of the programme:  
2 years / 120 ECTS credits
- 3.3 Access requirements:  
Three-year bachelor's degree or equivalent qualification with specialisation in a relevant subject area. See section 8 on admission requirements for further information.

## 4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

- 4.1 Mode of study:  
Full-time studies
- 4.2 Programme requirements:  
The master's degree programme in Informatics: programming and systems architecture expands the main field of study in the bachelor's degree. The student obtains a thorough background in research methods by writing a thesis representing 30 or 60 ECTS credits under the supervision of a member of the academic staff. In addition there is a special curriculum at the advanced level. This curriculum consists of courses representing 90 ECTS credits for students writing the 30-ECTS thesis, and 60 ECTS credits for students writing the 60-ECTS thesis.

### 4.3 Programme details:

Name: Lars Christian Hovtun Palm

					Grade distribution				
Course		Semester	Credits	Grade	A	B	C	D	E
Courses in the master's degree programme									
IN5040	Advanced Database Systems for Big Data	2020 autumn	10	C	■	■	■	■	■
IN5140	Smart processes and agile methods in software engineering	2020 autumn	10	B	■	■	■	■	■
IN5290	Ethical Hacking	2020 autumn	10	B	■	■	■	■	■
IN5280	Security by Design	2021 spring	10	B	■	■	■	■	■
IN5600	Programming Ubiquitous Things	2021 spring	10	A	■	■	■	■	■
IN4080	Natural Language Processing	2021 autumn	10	C	■	■	■	■	■
Master's thesis									
IN5960	Informatics. Master Thesis <i>The Cesar Framework A framework for storing and analyzing OSA data from smartwatches</i>	2022 spring	60	C	■	■	■	■	■
					Total: 120.0				

### Credit system and grading

The academic year normally runs from mid-August to mid-June and lasts for 10 months. Courses are measured in "studiepoeng", considered equivalent to the European Credit Transfer System standard (ECTS credits). The full-time workload for one academic year is 1500 - 1800 hours of study / 60 "studiepoeng".

The Norwegian grading system consists of two grading scales: one scale with the grades pass or fail and one graded scale from A to E for pass and F for fail. The graded scale has the following qualitative descriptions:

<b>A</b>	Excellent	An excellent performance, clearly outstanding. The candidate demonstrates excellent judgement and a very high degree of independent thinking.
<b>B</b>	Very good	A very good performance. The candidate demonstrates sound judgement and a high degree of independent thinking.
<b>C</b>	Good	A good performance in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas.
<b>D</b>	Satisfactory	A satisfactory performance, but with significant shortcomings. The candidate demonstrates a limited degree of judgement and independent thinking.
<b>E</b>	Sufficient	A performance that meets the minimum criteria, but no more. The candidate demonstrates a very limited degree of judgement and independent thinking.
<b>F</b>	Fail	A performance that does not meet the minimum academic criteria. The candidate demonstrates an absence of both judgement and independent thinking.

The assessment is criterion referenced.

### Grade distribution

The distribution of grades is shown by the percentage for courses using the graded scale A – F. Fail (F) is not included in the distribution. All results from the last five years are included in the calculation. The distribution is also shown for courses that have been active for less than five years. There has to be at least 10 approved results during the period.

- 4.4 Grading scheme and, if available, grade distribution guidance:  
See section 4.3

The master's thesis is assessed in accordance with specific grade descriptions for master's theses in the fields of Mathematics, Natural Sciences and Technology (MNT), see the appendix to the diploma supplement. The grade descriptions are more detailed and subject-specific than the general descriptions that apply to all courses. The grade descriptions are drawn up by specialized strategic units, the National Conference of Faculties of Natural Sciences (Nfmr) and the National Council for Technological Education (NRT), both underlying the Norwegian Association of Higher Education Institutions (UHR). They are implemented in the grading of theses from the end of the spring semester 2014 at educational institutions offering master's degree programmes in MNT-subjects in Norway.

- 4.5 Overall classification of the qualification (in original language):  
Not applicable

## **5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION**

- 5.1 Access to further study:  
The degree qualifies students for doctoral studies when all formal criteria have been met
- 5.2 Professional status:  
The degree is an academic degree, not a professional degree

## **6 ADDITIONAL INFORMATION**

- 6.1 Additional information:  
As the instruction / examination language of this programme is both Norwegian and English, international students can complete the programme without possessing sufficient knowledge of Norwegian to meet the minimum entrance requirements for programmes with Norwegian as the only language of instruction.
- 6.2 Further information sources:  
University of Oslo: <http://www.uio.no>  
Norwegian Agency for quality in education: <http://www.nokut.no>

## **7 CERTIFICATION OF THE SUPPLEMENT**

- |     |                                 |   |
|-----|---------------------------------|---|
| 7.1 | Date:                           | 13 September 2022   |
|     | Date of original qualification: | 3 June 2022   |
| 7.2 | Signature:                      | The document is electronically signed by Sikt - Norwegian Agency for Shared Services in Education and Research. The document is only valid in its original electronic form with the accompanying electronic signature. Time for signing |
| 7.3 | Capacity:                       | document 2022-09-13 12:23   |
| 7.4 | Official stamp:                 |   |

## 8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

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### Higher education in Norway: Legislature

The Ministry of Education and Research has the overall responsibility for higher education in Norway. Higher education is offered by four types of higher education institutions: university (*universitet*), specialized university institution (*vitenskapelig høyskole*), accredited university college (*akkreditert høyskole*), and university college with accredited study programmes (*høyskole med akkrediterte studier*). The differences between the types of higher education institutions are related to their self-accrediting authority.

All public and private higher education in Norway is subject to the Act Relating to Universities and University Colleges (Lov 2005-04-01 nr 15). An institution's right to award specific degrees and the prescribed lengths of study are codified in Regulation concerning degrees and titles (FOR 2005-12-16 nr 1574). The awarding of master's degrees is regulated by the Regulations on requirements for awarding a master's degree (FOR 2005-12-01 nr 1392).

Since 2002 Norway has adhered to the objectives of the Bologna Process in the European Higher Education Area. Most of the elements have been implemented through the reform of the Norwegian higher education system carried out in 2003. Central to the reform has been a transition from the former degree system to the bachelor's, master's and doctoral degree structure, with a few exceptions.

Norwegian higher education qualifications make up the levels from 6 to 8 of the Norwegian Qualifications Framework for Lifelong Learning (NQF) from 2011, which is the national overarching qualifications framework<sup>1</sup>. It describes the levels of qualifications as defined by the total learning outcomes in terms of the knowledge, skills and general competence that graduates at various levels should have achieved<sup>2</sup>.

NQF was referenced to the European Qualifications Framework (EQF) in 2014.

### Quality assurance and accreditation of institutions and programmes

The Norwegian Agency for Quality Assurance in Education (NOKUT) is an autonomous governmental agency which provides external supervision and control of the quality of Norwegian higher education, as well as of all tertiary vocational education<sup>3</sup>. NOKUT accredits new study programmes, controls the existing ones, and provides a cyclic evaluation of the institutions' quality assurance systems for educational provision.

An accredited higher education institution is granted the right to offer educational provision, without having to apply to NOKUT for specific programme accreditation, in accordance with the authority that its institutional category implies:

- a) Universities may without external accreditation establish study programmes at all levels.
- b) Accredited university colleges have to apply for the accreditation of programmes at master and doctoral levels.
- c) In those fields where specialized university institutions and accredited university colleges have the right to award doctorates or corresponding degrees, they may themselves decide which study programmes and disciplines the institution shall provide.

University colleges without institutional accreditation must apply to NOKUT for accreditation of study programmes at all levels.

Lists of all accredited institutions, as well as of all accredited study programmes at the university colleges without institutional accreditation are available on [www.nokut.no](http://www.nokut.no)

### Admission requirements

The Higher Education Entrance Qualification is the successful completion of Norwegian upper secondary education with some specified courses. The Certificate of Upper Secondary Education and Training (*Vitnemål for videregående opplæring*) is based on 13 years of schooling.

Admission may also be gained by means of other qualifications recognized as being on a par with the Higher Education Entrance Qualification, such as recognition of prior learning and work experience.

Some fields of study have additional entrance requirements.

### Academic credit system

All Norwegian higher education institutions use a system of credits (*studiepoeng*) for measuring study activities considered equivalent to the European Credit Transfer and Accumulation System (ECTS). 60 ECTS credits (*studiepoeng*) are allocated to the workload of a full year of academic study, equivalent to 1500-1800 hours of study. 30 ECTS credits are normally allocated to one semester's full-time study. The academic year normally lasts for 10 months and runs from August to June.

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<sup>1</sup> National generic learning outcomes descriptions' levels for the bachelor's, master's and doctoral degrees were defined by the Instructions on the Norwegian Qualifications Framework for Higher Education in 2009.

<sup>2</sup> Learning outcomes for a specific NQF level show the minimum of what each learner should know, understand and be able to do after completing a learning process.

<sup>3</sup> Tertiary vocational education (TVE), level 5 in the NQF (EQF), is provided by *fagskoler*, which are considered as tertiary vocational education institutions. TVE is based on upper secondary education and training or equivalent competence. Courses have duration of from six months to two years. All provisions must be accredited by NOKUT.

## Degrees and qualifications

### NQF (EQF) Level 6: Bachelor (1st cycle)

**Bachelor's degree** is awarded after three years of full-time study (180 ECTS). Some bachelor's degrees, in the field of music and performing arts, consist of four-year bachelor's programmes (240 ECTS).

Teacher education for primary and lower secondary school, years 1-7 and years 5-10 has been a four-year professional programme (240 ECTS) prior to its reform on 1 January 2017, when it became a five-year integrated master's degree.

**University college graduate** (*høyskolekandidat*) is a two-year degree (120 ECTS), a short cycle degree within the first cycle. Holders of this degree may in some cases continue their studies in a bachelor programme and thus obtain a bachelor's degree.

### NQF (EQF) Level 7: Master (2nd cycle)

**Master's degree** is normally obtained after two years of study (120 ECTS), following the completion of a bachelor's degree. A master's degree programme includes independent work (normally a thesis) of between 30 and 60 ECTS.

**Experience-based master's degree** has a scope of 90 or 120 ECTS (including independent work of at least 20 ECTS).

**Integrated master's degree** is a five-year study programme (300 ECTS) which results in a master's degree, with no intermediate bachelor's degree. An exception is

the Master of Architecture programme at the Oslo School of Architecture and Design, which has a scope of 330 ECTS.

In the fields of medicine, psychology and theology, **professionally oriented degrees/qualifications** of six years' duration (360 ECTS) are awarded; in the field of veterinary science - after 5 ½-6 years. They have retained the title/degree *candidata/candidatus* from the former degree system.

### NQF (EQF) Level 8: Doctoral degree (3rd cycle)

**Philosophiae doctor** (*ph.d.*) is awarded after three years of study, following the completion of a master's degree or a five to six-year professionally oriented degree/qualification.

#### **Philosophiae doctor in artistic research**

(*ph.d. i kunstnerisk utviklingsarbeid*) is awarded after three years of study in the field of creative and performing arts. In 2018, the degree replaced former *Diploma, artistic development programme*, which will be phased out by 2025.

**Doctor philosophiae** (*dr. philos.*) is conferred on graduates who have qualified for a doctoral degree on their own, without formal research training.

Descriptions of the educational qualifications are given in the Norwegian Qualifications Framework for Lifelong Learning at [www.nokut.no/nkr](http://www.nokut.no/nkr)

## The Norwegian Education System

