



**Deviations from the 3+2 degree structure model and
recognition issues**

The Bicycle Project

Nordic Recognition and Information Centres Network (NORRIC)

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1. Introduction

The task of the Bicycle project was to examine the boundaries between degrees of higher education: boundaries between the first cycle and second cycle degrees on the one hand, and boundaries between the second and third cycle degrees on the other. The presumption was twofold. Firstly, it was presumed that differences in degree structures might hinder the mobility of students across the structural boundaries. Secondly, it was presumed that differences in the lengths and/or contents of programmes might restrict movement from a programme at first cycle level to another at second cycle level.

The existing degree structures in Europe show variation in the lengths of degree programmes. This was to be expected before the Bologna Process as some countries had a system of two cycles, while others had long first cycle degrees, for example. However, according to the action lines of the Bologna Declaration, member states are to adopt a system of higher education essentially based on two main cycles, undergraduate and graduate. The duration of these cycles is not explicitly defined in the declaration, but it is recommended that the first cycle should consist of “first degrees no shorter than 3 years”. Furthermore, since the signing of the declaration the notion of “3+2” is becoming a common model in the European Higher Education Area (EHEA) and many countries are undergoing a harmonization of their degree structures towards the 3+2(+3) model.

In the Nordic area there has also been movement towards the 3+2 model over the past 10-15 years. By August 2005, Finland, Norway, Iceland and Denmark had adopted a degree structure essentially based on the 3+2 model in most fields of study. In Sweden, plans to further implement the Bologna principles are likely to be implemented by 2007.

Nevertheless, the 3+2 degree model is not a single model in any of the Nordic countries or the EHEA. There remain first cycle degrees extending beyond three years and examples of second cycle degrees of less than two years in duration. Moreover, the current law proposal for a new Swedish degree structure also suggests a diverse degree structure with more options than the 3+2 model.

A recent NORRIC report on higher education structures and recognition problems in the Nordic countries (NORRIC 2004) came to the conclusion that recognition problems in the Nordic countries mainly occur when there are differences in the lengths and/or depths of degree programmes. Problems related to length mainly seem to occur at the second cycle level when second cycle degrees last less than 2 years based on a 3-year first cycle degree (e.g. the 3+1 model in Sweden), but some problems may also occur at the first cycle level.

Differences in the lengths of programmes may be caused by a difference in the programmes' depths or scopes. While it may be expected that differences in depths cause differences in recognition, differences in scopes do not necessarily do so.

Since the length of degrees is of significance to academic recognition and may cause recognition problems, it was considered relevant to make a further investigation into first and second cycle degrees that vary in this respect. Focus was placed on degrees that deviate from the 3+2 model, viz. first cycle degrees lasting longer than three years and second cycle degrees lasting less than two years, and their combination.

It was decided to take a closer look at three types of differences in programmes in the Nordic countries. An example programme for demonstrating the first type of difference was chosen from the field of engineering in which academic programmes exist along with professional programmes and where there is variation both in the length and depth of programmes at both the first and second cycle levels. An example programme showing the second type of difference in programmes was chosen from the field of nursing where the most significant difference in length is between a 3+1 model and a 4+2 model. The third type of difference is shown by an example from a more classical programme, in the field of history, where only one programme deviates from the 3+2 model, viz. the Swedish 1-year second cycle *magister* degree.

Although the group limited its work to looking at 3 types of programmes within the degree structures of the Nordic countries, it was felt that the drawn conclusions could be extended to a wider Nordic context, to some degree even a European and also a global context.

The group gathered information on the chosen programmes by circulating a questionnaire in the Nordic Enic/Naric offices and sending the questionnaire to one university from each study area in each country to find out how the different programmes are compared. It was decided to send questionnaires to the Enic/Naric offices as well as the higher education institutions as there might exist differences between the recognition made by the two. Furthermore, it was thought that involving universities would bring information on opportunities for holders of first and second degrees to enter second and third cycle degrees, respectively, within the same field across the Nordic countries.

The report deals with the following questions:

- What exemptions from the 3+2 model exist in the Nordic countries?
- Are there patterns and what are they?
- How do deviations from the 3+2 model affect academic recognition by Enic/Narics and higher education institutions?

The first part of the report, chapter 2, will map exceptions to the 3+2 model at first and second cycle levels in the Nordic countries. The following chapters 3, 4 and 5 will present case examples of degree programmes from the three chosen fields of study where exceptions to the 3+2 model were found, viz engineering, nursing and history. These chapters will each conclude in a short discussion on differences in length, recognition standards and the possible recognition problems related to these differences.

The final chapter of the report, chapter 6, discusses conclusions concerning the importance of length in relation to the recognition of first and cycle degrees in the Nordic countries as well as outlines perspectives for further investigation.

The appendix of the report includes a concise history on degrees in engineering, nursing and history that were chosen for this study.

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2. Mapping exceptions to the 3+2 degree structure model

The higher education degree structure in Denmark, Finland, Iceland and Norway generally follows the 3+2 model, but in all the four countries there are also exceptions to the model. The Swedish degree structure, however, is based on a one-tier system. The exceptions to the 3+2 model in the Nordic countries are presented below.

Deviations from the 3+2 degree structure in Denmark

At the first cycle level there are professionally oriented Bachelor's degrees within the non-university sector corresponding in level to the university Bachelor's programmes. These programmes involve practical training and last for 3.5 to 4 years, while the academic Bachelor's programmes last for 3 years. In some subjects, e.g. in engineering, professional programmes of 3.5 years and academic programmes of 3 years are run side by side.

At the second cycle level a few programmes can be found that are longer than 2 years, for example the 3-year *Cand Med.* degree in medicine and the 2.5 year *Cand.Med. Vet.* degree.

Shorter programmes can also be found in the adult education sector. These are not part of the ordinary degree structure, but are part of the Danish national qualification framework and lead to academic credentials at levels corresponding to those of the ordinary higher education system. The adult education second cycle degree is the 1-year (60 ECTS) Master's degree. There is also a 1-year Diploma degree within the adult education sector which is considered comparable to a Bachelor's degree and gives access to Master's programmes. Finally, there are also Master's programmes directed at foreign students that last for 1.5 years.

Deviations from the 3+2 degree structure in Finland

Polytechnics offer professionally oriented Bachelor's degrees which are organized as 3 - 4 year (180, 210 or 240 credits¹) degree programmes, whereas universities offer 3-year (180 credits) academic Bachelor's degree programmes. Furthermore, the first cycle polytechnic degree of *Bachelor of Marine Technology (merenkulun ammattikorkeakoulututkinto/ yrkeshögskoleexamen i sjöfart)* lasts for 4.5 years (270 credits).

At the second cycle level there are programmes both longer and shorter than 2 years. There are 3-year (180 credits) degrees in medicine and veterinary medicine and 2.5-year (150 credits) degrees in psychology and music. The shorter degrees are 1.5-year (90

¹ The term of credit refers to ECTS-compatible credits when used in connection to Finnish degrees.

credits) Master's degrees originally geared towards foreign students and Master's degrees within the polytechnic sector of the duration of 1-1.5 years.

Deviations from the 3+2 degree structure in Iceland

At the first cycle level there are 3.5-year professionally oriented engineering programmes. The programme is run side by side with a 3-year (180 ECTS) academic programme in engineering. In nursing, occupational therapy, drama and physical therapy, programmes last for 4 years (240 ECTS) and include practical studies.

There are no 1-year (60 ECTS) Master's programmes. Most Master's programmes comprise 120 ECTS credits, but the following last for 1.5 years (90 ECTS): LLM in International and Environmental Law (90 - 120 ECTS), Economics, Business Administration (90 - 120 ECTS), Human Resource Management, Medieval Icelandic Studies, M. Paed. in Languages, Mathematics and Chemistry, Computer Science, Social Work (90 - 120 ECTS), Disability Studies (90 - 120 ECTS) and Education (90 - 120 ECTS).

Deviations from the 3+2 degree structure in Norway

At the first cycle level there are only few programmes exceeding 3 years in duration. An example of a 4-year programme (240 ECTS) is the Bachelor's degree in music.

At the second cycle level there exist several one-tier degrees that exceed the duration of 5 years. These are in medicine, psychology and theology which are organized as 6-year programmes (360 ECTS) and architecture which has a 5.5-year programme (330 ECTS). Shorter Master's programmes of 1- 1.5 year's duration are also found. These are aimed at international students or persons with prior work experience.

Deviations from the 3+2 degree structure in Sweden

The degree structure in Sweden includes general degrees and professional degrees. The general degrees consist of degrees of various lengths from a minimum of 2 years to a minimum of 4 years. The Bachelor's degree is at least 3 years in duration with the possibility of continuing to a Master's degree. There are two kinds of Master's degrees: one follows a coherent model of at least 4 years (depth) and the other follows the 3+1 model, i.e. 3 years for the Bachelor's degree and 1 year for the Master's degree (breadth). The 3+2 model is more common in the field of arts; 1.5 - 2 year's Master's programmes are also found within other fields. The longer one-tier programmes exist, e.g. in medicine (5.5 years) and teacher's education (3 - 5.5 years). Because the Swedish degree system operates with a minimum duration of degrees rather than a fixed duration of degrees, individual institutions may vary in the duration of their degrees.

Patterns

There are no rigid patterns when looking at the programmes deviating from the 3+2 model in the Nordic countries, but there are tendencies. These tendencies are given below.

Within the university sector, all countries but Sweden have introduced the 3+2 model in most academically oriented programmes, with a few exceptions. These exceptions are often within fields which have a tradition of longer programmes, such as the fields of medicine and veterinary science.

In countries with distinct binary systems, the first cycle degrees with a professional orientation are generally longer than the comparable academic first cycle degrees in the university sector. Furthermore, in Iceland, which does not have a binary system, some of the first cycle university degrees with a professional orientation, such as nursing, are also longer than the other first cycle degrees, while this is generally not the case in Sweden or Norway, for example. However, although some professional programmes tend to be longer than their academic counterparts, this tendency is not all-inclusive, i.e. this is not so for all the professionally oriented programs. Thus, the fact that professionally oriented programmes contain a practical component does not fully explain the extra length.

At the second cycle level there are two notable tendencies regarding programmes aimed at foreigners, programmes belonging to the adult education system and ones that require previous work experience. These programmes tend to be shorter than the traditional programmes, i.e. 1 - 1.5 years in duration instead of the more common 2 years. In Finland, professionally oriented second cycle degrees requiring work experience are within the polytechnic sector of higher education. In Denmark, on the other hand, work based degrees are part of a separate adult education degree framework.

In conclusion, the move towards a 3+2 degree structure model has taken place in all the Nordic countries but Sweden, yet there continue to exist deviations in all the countries. At the first cycle level, this is clearly the case for Denmark and Finland that continue to have binary systems with longer professional Bachelor's degrees. At the second cycle level, the emergence of international Master's degrees, work-based adult education degrees and professionally oriented degrees requiring work experience, all of less than 2 years duration, is a relatively new tendency that deviates from the 3+2 model.

3. Case study no. 1: Engineering

Present degrees

First cycle

All the present first cycle degrees in the field of engineering in the Nordic countries fulfill the minimum duration of first cycle degrees as proposed in the Bologna declaration. Iceland, Finland and Denmark offer professionally oriented first cycle degrees which extend 3 years of study parallel to academic degrees of 3 years in duration (I:3.5; FI:4; DK:3.5). The Danish and Finnish professionally oriented programmes include a minimum 0.5 years of practical training (30 credits). The Icelandic professional programme does not include practical training, but nevertheless practical training is a prerequisite for fulfilling course requirements. In Sweden, the professionally oriented first cycle degree does not in most cases extend beyond 3 years, but neither does the programme include practical training. After recent reforms in Norway, the 3-year Bachelor's programme is defined as both a professionally and

academically oriented qualification. As in Sweden, the programmes do not include practical training.

Most of the current first cycle degrees, whether academically or professionally oriented, are concluded with a project or Bachelor's thesis, the only exception is the academic degree at the University of Iceland. In Denmark, Sweden and Norway, the projects have a duration of 15 ECTS credits in both professional and academic programmes. In Iceland, the duration of the Bachelor's project in professional programmes is 24 ECTS credits. In Finland, the professionally oriented degree includes a final project or thesis (22.5 credits in the programme chosen for study in this report; individual polytechnics may vary) and the academic degree includes a Bachelor's thesis of 6 - 10 credits according to the decision of the individual university.

Finally, there are a number of first cycle programmes across the Nordic countries that are longer than 3 years in duration due to their degree of specialisation within the study field or the interdisciplinary nature of the programme, but these represent clear exceptions and will not be dealt with further detail in this study².

Academically oriented Bachelor's degrees of 3 year's duration from Iceland, Norway, Denmark and Finland give admission to Master's programmes within the same field of specialisation. Professionally oriented programmes in Denmark give general access to 2-year Master's programmes, but the admission may require additional courses. Also in Iceland and Finland, professional Bachelor's programmes give general access to academic Master's programmes, but additional courses may be required in order to fulfill the admission requirements. In Denmark and Finland, the professional Bachelor's degrees give access to the adult education system's or polytechnic Master's degrees, respectively, of 1 and 1.5 years duration, together with relevant work experience. In Sweden, the *högskoleingenjör* programmes which fulfill the criteria for the *teknologie kandidatexamen* degree give general access to the *teknologie magister* degree. Furthermore, the Bachelor degree studies may be transferred into the one-tier professional *civilingenjör*, but credit transfer is determined individually and most commonly only 120 ECTS credits of 180 ECTS credits are transferred into the *civilingenjör* programmes.

Second cycle

In Denmark, Iceland and from August 2005 in Finland, the majority of the academic Master's degrees is 2 years in duration. In Norway, there exist both 2-year Master's degrees and one-tier programmes of 5 years in duration. All the programmes meet the general requirements for access to doctoral studies. In Sweden, the one-tier *civilingenjör* degree has a duration of 4.5 years. General degrees leading to the title of *teknologie magister* vary in length and may be obtained after 4 - 5 years. Both holders of the *teknologie magisterexamen* and the *civilingenjörsexamen* degree meet the general requirements for access to doctoral studies.

² In Finland, all the professionally oriented Bachelor of Engineering (*Insinööri AMK, Ingenjör, YH*) degrees are of 4 years in duration, except for one programme in Marine Technology (4.5 years/270 credits). In Denmark, the programme in export engineering lasts for 4.5 years because it is an interdisciplinary qualification that combines engineering with marketing and product sales. In Sweden, the Bachelor of Science in Fire Protection Engineering of 3.5 year's duration (*Brandingenjörsexamen*) is the only first cycle programme extending 3 years in duration.

All the Master's degrees include a research component and a thesis with a workload of the minimum of 30 ECTS credits. In some cases, the thesis requirements for a Swedish *teknologie magister* degree is only 15 ECTS credits if the Board of study can approve the 15 ECTS credit Bachelor's project as relevant for the *magisterexamen* degree.

The polytechnic Master's degree of 1 or 1.5 years from Finland and the 1-year adult education Master's from Denmark both require preliminary work experience. The Danish Master's does not give general access to doctoral studies, but may lead to admission in combination with other qualifications. The Finnish polytechnic Master's degree, on the other hand, gives general access to doctoral studies in Finland, but as in entry to all higher education, admission is based on restricted entry and further requirements may be set. Moreover, there is yet no experience in practice. The thesis requirement for the Danish Master's is 15 ECTS credits; the Finnish polytechnic Master's degree also includes a final thesis or a final project.

Choosing programmes to focus on

The field of engineering is a diverse field. There exist both professionally and academically oriented degrees, and there are several programmes at first and second cycle level that vary from the 3+2 degree structure model. The group decided to look at the qualifications deviating from the 3+2 model but also to include qualifications following a "Bologna-style" 3+2 model in order to investigate the differences that might exist between non-3+2 and 3+2 degrees as well as between the professionally and academically oriented degrees.

The cases chosen for this study from the first cycle level are listed below. The cases include the professionally oriented Bachelor's degree of more than 3 years in duration from Denmark, Iceland and Finland. The 3-year Swedish *högskoleingenjör* and the Norwegian *Høgskoleingeniør/Bachelor i ingeniørfag* were chosen as examples of 3-year first cycle degrees with a professional and academic orientation, respectively. At the second cycle level, a 1-year Swedish *teknologie magister* degree, a 4.5 year Swedish *civilingenjör* degree and a Danish Master's programme from the adult education sector were chosen as representing deviations from the 2-year Master's, while the Norwegian 2-year master was chosen to represent a "3+2" Master's. The Finnish polytechnic Master's degree of 1 year's duration was not included in the study since the course structure and curricula were still undergoing development at the time of the study. Although the degree has existed since 2002 on an experimental basis, it was only made permanent as of August 1, 2005.

In order for one education institution/faculty to be able to assess and compare all the degrees, it was decided to choose the degrees from one field of engineering, viz. electrical engineering. The different degree programmes were chosen with identical or closely related specialisations. The participating education institutions/faculties and the Enic/Naric offices were provided with English course descriptions of the degree programmes and they were sent questionnaires concerning the assessment of the programmes.

Simplified structural diagram for Nordic engineering-programs

"Bologna-style" first cycle plus second cycle		"Bologna-style" third cycle	
3 years / 180 "ECTS" / 120 poäng	2y. / 120 "ECTS" / 80p	3 years / 180 "ECTS" / 120 poäng	
Denmark			
B.Sc. / civilbachelor Project: 15 "ECTS"	Work experience min. 2 years	Master 60 "ECTS" thesis 15 "ECTS"	Adult education, terminal 2nd. cycle degree, no access to PhD
Professional Bachelor / Diplomingeniør Project: 15 "ECTS" Practical training: 30 "ECTS"	Work experience min. 2 years	Master 60 "ECTS" thesis 15 "ECTS"	Adult education, terminal 2nd. cycle degree, no access to PhD
B.Sc. / civilbachelor Project: 15 "ECTS"	Civilingeniør/ Cand. polyt. Thesis: 30 "ECTS"	PhD	
Professional Bachelor / Diplomingeniør	Civilingeniør/ Cand. polyt.	PhD	
Finland			
Polytechnic bachelor 240 credits Practical training 30 credits Thesis or final project	Work experience 3 years	Master 60 credits thesis/project	
University bachelor 180 credits Thesis 6-10 credits Full degree names: see caption	Master thesis 20-40 credits no practical training	licentiate + doctorate (2 years plus 2 years) or doctoral degree (4 years)	
Iceland			
Bachelor of Science in engineering thesis 24 "ECTS"; "Tæknifræði" (professional) program	Terminal professional degree		
Bachelor of Science in engineering "Verkfræði" (academic) program	Master thesis 30-60 "ECTS" no practical training	PhD	
Norway			
Bachelor	Master thesis 30-60 "ECTS" no practical training	PhD	
Master thesis 20-60 "ECTS", practical training not obligatory		PhD	
Sweden			
Civilingenjörsexamen 180 poäng (4 1/2 years) Thesis 20 poäng		Doktorsexamen 160 poäng (4 years)	
Högskoleingenjörsexamen 120 poäng (3 years) Thesis 10 poäng	Teknologie magister- examen Thesis 10p	Doktorsexamen 160 poäng (4 years)	
Teknologie Kandidatexamen 120 poäng (3 years) Thesis 10 poäng	Teknologie magister- examen Thesis 10p	Doktorsexamen 160 poäng (4 years)	

For admission to doctoral studies at least 120 "poäng" are required. The faculty board may stipulate additional requirements.

Finland

Polytechnic degree names	
Tekniikan ammattikorkeakoulututkinto, insinööri (AMK)	Tekniikan ylempi ammattikorkeakoulututkinto, insinööri (ylempi AMK)
Yrkeshögskoleexamen i teknik, ingenjör (YH)	Högre yrkeshögskoleexamen i teknik, ingenjör (högre YH)
Bachelor of Engineering	Master of Engineering

University degree names			
Tekniikan kandidaatin tutkinto	Diplomi-insinööri	Tekniikan lisensiaatin tutkinto	Tekniikan tohtorin tutkinto
Teknologie kandidatexamen	Diplomingenjör	Teknologie licentiatexamen	Teknologie doktorsexamen
Bachelor of Science in Technology	Master of Science in Technology	Licentiate of Science (Technology)	Doctor of Science (Technology)

Higher education institution assessments

The engineering qualifications were assessed by the Engineering faculties of *Aalborg University (AAU)* in Denmark, the *University of Iceland* in Iceland and the *Kungliga Tekniska Högskolan (KTH)* in Sweden. The Finnish *Helsinki University of Technology (HUT)* assessed 4 out of 9 cases. Norwegian institutions did not participate in the case analysis.

The institutions underlined the difficulty in comparing the programmes and evaluating admission to further studies. Due to the number of specialization fields within engineering, decisions concerning credit transfer and admission to Master's level studies were based on the individual assessments of course structures with the depth and scope of the Bachelor's level degrees compared to the relevant Master's programmes. Furthermore, some of the provided course descriptions were not detailed enough to enable precise assessments. Therefore, it should be noted that although the assessments represent qualified assessment statements, they are not definite decisions concerning credit transfer or admission.

Bachelor's degrees (Cases 1 - 5)

Case 1

The Danish professionally oriented *Diplomingeniør/Bachelor of engineering* of 3.5 years in duration was compared in level to a Bachelor's level degree by the *Kungliga Tekniska Högskolan (KTH)* in Sweden. The qualification would give admission to Master's level studies, but admission might require additional courses in the fields of physics, automatic control and power engineering. The *Helsinki University of Technology (HUT)* in Finland compared the *Diplomingeniør* to be at the Bachelor's degree level. Two expert opinions were obtained: one expert was hesitant about the basis of mathematics and physics and the practical orientation with regard to admission

to Master's level studies, whereas the other expert was willing to give direct admission to a Master's programme and perhaps a credit transfer of approximately 20 ECTS credits. The *Diplomingeniør* was not considered comparable to the Bachelor's level at the *University of Iceland*, but additional requirements would have to be met before admission to the Master's level. The additional requirements would include 15-21 ECTS credits in mathematics, physics and core courses in electrical engineering and electronics.

Case 2

The Swedish professional degree of *Högskoleingenjör/BSc in engineering* of 3 years was assessed to give admission to a Master's programme at the *Kungliga Tekniska Högskolan (KTH)* in Sweden with additional course requirements. If transferred into a *civilingenjör*, the *KTH* would have given 120 ECTS credit transfer. The *Aalborg University (AAU)* in Denmark compared the *högskoleingenjör* to be at the Danish Bachelor's degree level and might have admitted the *högskoleingenjör* to a Danish Master's programme. The *AAU* has constructed the first semester of its Master's programmes offered to foreign students as an introductory semester, where it is possible to complete the additional course requirements in parallel with the Master's studies. The *University of Iceland* considered the *Högskoleingenjör/BSc in engineering* not comparable to the Bachelor's level, but additional courses in mathematics and signal processing would be needed for admission to the Master's level.

Case 3

The assessment of the Finnish professionally oriented *Bachelor of Engineering* degree (*Tekniikan ammattikorkeakoulututkinto, insinööri (AMK)/ Yrkeshögskoleexamen i teknik, ingenjör (YH)*) of 4 years in duration was considered difficult to assess due to the limited course information. The *Aalborg University (AAU)* in Denmark might have compared the degree to a Bachelor's level degree. Admission to a Master's programme was assessed likely to require additional courses in mathematics, physics and perhaps field specific courses, since their might not have been enough depth in the programme, but this would have required a more in-depth assessment. The *Kungliga Tekniska Högskolan (KTH)* in Sweden compared the degree to their Bachelor's degree level (*högskoleingenjör*). The qualification might have lead to admission to a Master's programme, but this would have required a more detailed assessment of individual courses. The credit transfer of a few courses into Master's programmes might also have been possible, but this would have required an individual assessment. The *KTH* notes, that although the programme is of 4 year's duration, some subjects, such as language training, fall outside an ordinary Swedish engineering curriculum. The *Bachelor of Engineering* degree was not considered comparable to Icelandic Bachelor's level degree at the *University of Iceland*, but additional requirements would have to be met before admission to the Master's level. The additional requirements would include 30 ECTS credits in mathematics, physics and core courses in electrical engineering.

Case 4

The Norwegian 3-year *Høgskoleingeniør/Bachelor of engineering* was considered comparable to a Danish Bachelor's level degree by the *Aalborg University (AAU)* in Denmark and the *Kungliga Tekniska Högskolan (KTH)* in Sweden, and would be considered to give access to a Master's programme, especially if the additional elective mathematics directed at further studies were chosen. The *KTH* assessed that the

qualification resembles the first three years of a *civilingenjör* programme. The *Høgskoleingeniør/Bachelor of engineering* was not considered comparable to Icelandic Bachelor's level degree at the *University of Iceland*, additional requirements would have to be met before admission to the Master's level. The additional requirements would include 15 ECTS credits in mathematics, physics and core courses in electrical engineering.

Case 5

The Icelandic professionally oriented *Tæknifræði/Bachelor of Science in Engineering* of 3.5 years in duration was not considered comparable in level, content, scope or learning outcome to a Bachelor's level degree at the *Aalborg University (AAU)* in Denmark. Mathematics and physics were not considered to be at a sufficient level because the programme is oriented very practically. Admission to a Master's programme was considered likely to require additional courses in mathematics. The *Kungliga Tekniska Högskolan (KTH)* in Sweden compared the *Tæknifræði* to a Bachelor's level degree (*høgskoleingenjör*) that might give access to a Master's programme. The qualification was considered to be at a somewhat higher level than a Swedish *høgskoleingenjör*examen and might lead to credit transfer into a Master's programme. Both universities state that the course description was not detailed enough to make an in-depth assessment of the qualification.

Master's degrees (Cases 6 - 9)

Case 6

The Danish adult education *Master* of 1 year's duration was not considered comparable to a Master's degree (*Civilingenjör*) offered at the *Kungliga Tekniska Högskolan (KTH)* in Sweden and was not considered to give access to a doctoral programme. It might have been compared with a Swedish *Magister med ämnesbredd* of 1 year's duration. Credit transfer of 30 ECTS credits into a Master's programme was considered possible. The *University of Iceland* did not consider the degree as comparable to a Master's degree, but comparable to 60 ECTS at the Master's level. An additional 60 ECTS credits (mostly in thesis) would be required for admission to the doctoral level.

Case 7

The Swedish *Teknologie magisterexamen/Master of Science* from *Karlstad University* of 1 year's duration was not considered comparable to a 2-year Master's degree (*civilingeniør*) at *Aalborg University (AAU)*. Credit transfer of about 60 ECTS credits into a 2-year Master's degree was considered possible. It would have been difficult to gain access to a doctoral programme at the *AAU*, but these decisions are based on individual assessments. At the *Helsinki University of Technology (HUT)* in Finland, one of the two experts did not consider the qualification comparable with a full 2-year Master's programme, but 30 - 50 ECTS credit transfer into a Master's programme was considered possible. The other of the two experts felt there was not sufficient programme information to make an informed statement of comparability. Furthermore, the other of the experts did not consider the qualification sufficient for admission to licentiate/doctorate studies, while the other considered that the programme might have offered a basis for continuing studies within the same field of specialisation. The *Kungliga Tekniska Högskolan (KTH)* in Sweden considered the programme too narrow in comparison to their Master's degrees, but would give about 40 - 50 ECTS credits transfer into their Master's programme (note that Master's/magister programmes at

KTH within electrical engineering are of a min. 1.5 year's duration). The qualification would not normally give access to doctoral programmes, but these decisions are based on individual assessments. The *University of Iceland* did not consider this qualification to be comparable to a Master's degree regarding admission to a doctoral programme.

Case 8

The Swedish *Civilingenjörexamen/Degree of Master of Science in Engineering* of 4.5 years in duration was considered comparable in level to a Danish *Civilingeniør* degree by the *Aalborg University (AAU)* in Denmark and a full Master's degree by the *Helsinki University of Technology (HUT)* in Finland and the *University of Iceland*. All the universities state that it fulfils access requirements for doctoral studies.

Case 9

The Norwegian 2-year *Master i teknologi/Sivilingeniør/Master of Engineering* was considered comparable to a full Master's degree within the same field of study by the *Aalborg University (AAU)*, the *Kungliga Tekniska Högskolan (KTH)* and the *Helsinki University of Technology (HUT)*. Thus, the qualification was considered to fulfill the access requirements for doctoral programmes in Denmark, Sweden and Finland. However, the *University of Iceland* did not consider this degree as fully comparable to a Master's degree. An additional 15 ECTS credits would be required for admission to the doctoral level.

Enic/Naric assessments and feedback on assessments

The assessment of the engineering degrees by the higher education institutions included the assessment of 4 out of 9 cases by the *Helsinki University of Technology (HUT)* in Finland. The Finnish Enic/Naric office has assessed the same 4 out of 9 cases below. As the Finnish Enic/Naric issues decisions of professional recognition for labour market purposes and this differs from the approach and purpose of academic recognition, comparisons are made to the levels of education only.

Bachelor's degrees (Cases 1 - 5)

Case 1

The Danish professionally oriented *Diplomingeniør/Bachelor of engineering* of 3.5 years in duration was considered comparable to professionally oriented first cycle degrees in Iceland and Finland, and first cycle degrees in Sweden. Norway compared the degree to a Bachelor's degree + 30 ECTS credits at the Bachelor's degree level.

Case 2

The Swedish professional degree of *Högskoleingenjör/BSc in Engineering* of 3 years in duration was compared to a 3-year academically oriented Bachelor's degree in Iceland and Denmark and to a Norwegian Bachelor's degree.

Case 3

The Finnish professionally oriented *Bachelor of Engineering* degree (*Tekniikan ammattikorkeakoulututkinto, insinööri (AMK)/ Yrkehögskoleexamen i teknik, ingenjör (YH)*) of 4 years in duration was considered comparable to professional Bachelor's degrees in Iceland and Denmark and to a first cycle degree (*högskoleingenjör*) in

Sweden. Norway compared the degree to a Bachelor's degree + 60 ECTS credits at the Bachelor's degree level.

Case 4

The Norwegian 3-year *Høgskoleingeniør/Bachelor of Engineering* was compared to the Swedish *högskoleingenjör* and the academically oriented Bachelor's degrees in Iceland and Denmark.

Case 5

The Icelandic professionally oriented *Tæknifræði/ Bachelor of Science in Engineering* of 3.5 years in duration was compared to professionally oriented first cycle degrees in Denmark and Finland and to a first cycle degree *högskoleingenjörsexamen* in Sweden. Norway compared the *Tæknifræði* to a Bachelor's degree + 30 ECTS credits at the Bachelor's degree level.

Master's degrees (Cases 6 - 9)

Case 6

The Danish adult education *Master's* of 1 year's duration was compared to 60 ECTS credits at the Master's degree level in Norway and Iceland and to a *magisterexamen med ämnesbredd* in Sweden.

Case 7

The Swedish *Teknologie magisterexamen/Master of Science* of 1 year's duration was compared to 60 ECTS credits at the Master's degree level in Denmark, Norway and Iceland. Finland compared the degree to the level of the Finnish Master's degree.

Case 8

The Swedish *Civilingenjörexamen/Degree of Master of Science in Engineering* of 4.5 years in duration was compared to a Master's degree in Denmark, Iceland and Finland (level). Norway compared the *civilingenjörexamen* to 270 ECTS credits, i.e. not to a full Norwegian Master's degree, due to the time-for-time principle applied in Norwegian recognition procedures.

Case 9

The Norwegian 2-year *Master i teknologi/Sivilingeniør/Master of Engineering* was considered comparable to the Master's degrees in Finland (level), Iceland, Sweden and Denmark.

Discussion and conclusion

The conclusions are to be taken with reservation as only a limited number of institutions participated in the study. Since the Norwegian universities did not answer the enquiries in time for the analysis and as Finland only provided responses to some of the cases, a total of 5 out of the 9 cases were only assessed by three universities, and a further 2 more only by two universities. A further reservation must also be made as it was felt that more detailed information was needed for more detailed assessments.

The assessments by the higher education institutions show that at the Bachelor's degree level, none of the degrees in the study were considered as being at the Bachelor's level

in all the participating countries, when the institutions assess them with the purpose of admission to Master's programmes.

The Bachelor degree that comes closest to being accepted by all the institutions is the 3-year Norwegian Bachelor's degree, which is the only academically oriented Bachelor's degree in the study. The 3.5 - 4 year professionally oriented Bachelor's degrees were assessed in different ways with regard to admission to the Master's programmes by the participating universities. Interestingly, all the professionally oriented degrees were likely to give admission to a Master's programme at one of the participating universities, while the others took a more critical approach towards the same qualification. In the case of the Danish *diplomingeniør* there are two different opinions from experts from the same university (*Helsinki University of Technology, HUT*), but it is difficult to say what might cause these differences. However, the case study indicates that professionally oriented Bachelor's degrees, although they might be longer than 3 years, may require the completion of additional course requirements in the other Nordic countries before yielding access to Master's studies. This, however, is also the case in the countries in which the degrees have been completed.

All the participating institutions agreed that the 1-year Master's programmes are not considered as being at the level of the 1.5 - 2 year Master's degrees, but they may give credit transfer. The assessments point out not only the difference in length, but also the difference in scope and depth. Similarly, the 1-year Master's programmes will not easily be considered as sufficient basis for doctoral studies in any of the Nordic countries. This is also the case for the Swedish 1-year *teknologie magisterexamen* which was assessed similarly by a Swedish institution (*Kungliga Tekniska Högskolan, KTH*), although according to Swedish legislation the *teknologie magister* degrees give general access to doctoral studies in Sweden. The one-tier 4.5-year *civilingenjör* degree from Sweden was the only degree compared to the Master's degrees that fulfills the requirements for doctoral studies by all the participating institutions, despite the shorter duration of the degree.

There seems to be consensus when it comes to the assessments of the Enic/Naric offices. Most qualifications in the case study were assessed in similar ways as comparable in level either to a first or second cycle degree. The exceptions are given below.

The 1-year Swedish *teknologie magister* degree was compared to 60 ECTS credits at the Master's degree level in Denmark and Norway, whereas in Finland it was assessed as comparable to a Master's level qualification if preceded by a recognized first cycle degree. The difference in the assessments is due to the different purpose and criteria of recognition. In Denmark and Norway, the assessment was made for academic purposes while in Finland it was made for the purpose of professional recognition with view to labour market requirements. All the Enic/Narics recognised that the difference of 1 year in length as compared to a 2-year Master's programme is reflected in the depth and scope of the shorter programme, and the assessment "60 ECTS at Master's level" was seen as acceptable for the purpose of academic recognition.

The 1-year Danish adult education system's *Master* degree was compared to 60 ECTS credits at the Master's level in Norway and Iceland, and as a *magisterexamen med ämnesbredd* in Sweden. All the Enic/Narics considered these differences acceptable,

since the programme is 1 year shorter and has less depth and scope than a 2-year Master's degree. The comparison with a *magisterexamen med ämnesbredd* was not considered problematic, although the Danish degree is part of the adult education system and the *magisterexamen* is part of the mainstream degree system in Sweden.

The Swedish *civilingenjör* degree was compared to a full Master's degree in Iceland, Denmark and Finland. In Norway, however, it was compared to 270 ECTS credits, not being at the full Master's degree level. All the Enic/Narics, including the Norwegian office, find this problematic, since the depth and scope of the qualification is considered equal to that of the 2-year Master's degrees despite the difference in length of half a year. The assessment of Norway is the result of their time-for-time principle in assessment.

The Norwegian time-for-time principle also means that Bachelor's degrees of more than 3 years in duration are given extra ECTS credits. For example, the Finnish polytechnic Bachelor's degree was assessed as "*Bachelor's degree level + 60 ECTS at the Bachelor's degree level*". The group discussed the relation between the longer professionally oriented Bachelor's programmes and other qualifications at the Bachelor's degree level and what Norway's assessment signals, more depth and/or scope of the longer programme.

In conclusion, there is general agreement concerning the assessments and principles of the different Nordic Enic/Narics. Nevertheless, the Norwegian time-for-time principle was seen to lead to potential problems of recognition. Furthermore, it was concluded that length is only of major importance in 4 out of the 5 Nordic countries when there are differences in the depths and scopes of programmes. This seems to be the case, for example, when programmes at the Master's degree level are as much as 1 year/60 ECTS credits shorter than the Master's programmes they are compared with.

Finally, it was found that the professional Bachelor's degree from Sweden, the *högskoleingenjörsexamen* degree, is compared to academically oriented Bachelor's degrees in Denmark and Iceland rather than professionally oriented Bachelor's degrees. Here, the length of the programme and lack of practical training have been considered important in the assessment. The outcome, however, was not considered as representing a recognition problem.

4. Case study no. 2: Nursing

Present degrees

The general entrance requirement for all the first cycle nursing programmes is the completion of the Matriculation examination from secondary school. The specific entrance requirements also show variation as follows: the Matriculation examination from an academic branch with a course in chemistry, or the Matriculation examination from a nursing assistant programme with certain prescribed credits (Iceland); a certain level in mathematics and sciences (Denmark and Sweden); languages and social studies (Denmark); 9 months of work experience (Denmark); qualification as social- and health care assistant (*social- og sundhedsassistent*) with Danish language and natural sciences at certain level (Denmark); also a 3-year upper secondary vocational qualification (Finland) may qualify for entry.

In countries with a division between the academic and professional sector of higher education, nursing belongs to the professional sector. In Finland and Denmark where there is a professional sector of higher education, nursing is offered at polytechnics and university colleges, respectively, whereas in Sweden and Iceland where there is no such division of higher education, nursing programmes are offered at universities.

All the programmes at the first cycle level include a considerable amount of clinical studies. The amount of time used for clinical studies may vary, but the difference in the length of the programmes can not be explained by this variation.

Moreover, all the programmes include a final thesis or project, although there is some variation in its scope. For example, in Sweden the final project is 15 credits, in Denmark 20 credits and in Iceland 6 - 12 credits. Another common component are studies in the subjects of statistics and research, for example, 10 credits in the Icelandic programme, 15 in the Swedish one and in Denmark it is one of the 8 courses in the 30 credits' Health Science "module".

Differences are shown in the contents of programmes. The Danish and Finnish programmes are divided into "modules". In the Danish programme there is 120 credits in Nursing with 30 credits in Health Science, 20 credits in Natural Science, 20 credits in Humanities and 20 credits in Social Science; while the Finnish programme has 15 credits in Professional Studies, 45 credits in Health Studies, 90 credits in Nursing in Action Studies and 30 credits in Professional Intensive Studies, for example.

The Icelandic programme and the Swedish programme are not divided into "modules", but contentwise the Icelandic programme is similar to the Danish one as there is a similar emphasis on elementary courses in anatomy, biochemistry, physiology, cell biology, medical microbiology, embryology, pharmacology and nutrition as well as similar courses in psychology and sociology. The Swedish program is similar to the Finnish one as there are few courses in natural sciences (pathophysiology), but they include courses in psychology, anthropology as well as sociology and pedagogics. The difference in the natural science content may explain the length of the Icelandic programme as it has more emphasis on these courses than the Danish programme. Interestingly, with respect to content, the Icelandic and Danish programmes would seem to have a more "academic approach" whereas a more "professional approach" is seen in the Swedish and Finnish programmes.

The Bachelor's degree in Nursing gives access to Master's studies in all the Nordic countries, but supplementary studies (0.5 credits for Health Science programmes) or 1 year (for Nursing programmes) is required of those who have *grunduddannelse i sygepleie* in Denmark. The Bachelor's degree also gives access to doctoral studies in Sweden.

Second cycle

The Master's programme in Sweden is a 1-year programme. It includes 15 credits in courses on the theories of science and methodology, 15 credits in nursing and 30 credits in the final project.

In Finland, the Bachelor of Health Care (*sosiaali- ja terveystieteiden ammattikorkeakoulututkinto, sairaanhoitaja, amk/yrkeshögskoleexamen inom hälsovård och det sociala området, sjukskötare, yh*) gives access to the Master of Health Care degree (*sosiaali- ja terveystieteiden ylempi ammattikorkeakoulututkinto, sairaanhoitaja, ylempi amk/högre yrkeshögskoleexamen inom hälsovård och det sociala området, sjukskötare, högre yh*) after three years of relevant work experience. The Master's degree is a 1.5-year programme of 60 credits in different courses and 30 credits in the final thesis or project. The universities offer the degrees of Bachelor of Health Sciences (*terveystieteiden kandidaatin tutkinto/kandidatexamen i hälsovetenskaper*) of 120 credits and the Master of Health Sciences (*terveystieteiden maisterin tutkinto/magisterexamen i hälsovetenskaper*) of 180 credits, as well as the degrees of the Licentiate (*terveystieteiden lisensiaatin tutkinto/licentiatexamen i hälsovetenskaper*) and Doctor of Health Sciences (*terveystieteiden tohtorin tutkinto/doktorsexamen i hälsovetenskaper*). The degrees completed at polytechnics give general access to the next cycle's degrees at the universities.

The Bachelor's degree in Denmark gives access to three different types of second cycle "Master's" studies. There are two different *Kandidat* programmes, both of 2 years in duration with a 30-credit thesis. The *Kandidat* program in Nursing is a theoretical programme with an emphasis on the historical development of nursing, theory and praxis in nursing and nursing activities. The professional *BS* degree in Nursing gives direct access to this programme. The *Kandidat* programme in Health Science, on the other hand, is an interdisciplinary program. Those who have a *BS* degree in Nursing have to add half a year of supplementary studies for access to this program.

The professional *BS* degree in Nursing gives access to a 1-year Master's programme in Clinical Nursing. This programme consists of 45 credits in different courses and a 15-credit thesis.

The Master's programme in Nursing in Iceland is a 2-year programme. The programme consists of 24 credits in speciality courses, 36 credits in courses on methodology and 60 credits in a research project. There is also a Master's programme in Health Science. This is a 2-year programme of 30 - 60 credits in different courses and 60 - 90 credits in the final project.

There are different patterns in the lengths of the first and second cycle degrees in the Nordic countries. There is variation from the 3+1 pattern in Sweden through 3.5+1.5 in Finland to 3.5+2 and 3.5+0.5+2 in Denmark and finally to 4+2 in Iceland. Two of these examples are not pure Nursing programmes, viz. the Master's programme in Health Care in Finland (3.5+1.5) and the *Kandidat* programme in Health Science in Denmark (3.5+0.5+2).

All the Master's programmes include a final thesis or project. In the main, the scope of the thesis or project is 30 credits, but in the Danish Master's programme it is only 15 credits and in the Icelandic Master's programmes it is 60 - 90 credits. The programmes in Sweden and Iceland seem to be more heavily research-oriented, i.e. proportionally less time is spent on the speciality or nursing theory courses compared to research methodology and the final project. The Swedish programme differs from all the others, excluding the Danish Master's programme, in length as it is only a 1-year programme.

The Master's degree gives access to doctoral studies in nursing in Denmark and Iceland. In Sweden, students can start their doctoral studies directly after their Bachelor studies, i.e. the Master's degree is not an admission requirement for the doctoral studies, but the Faculty Board may stipulate additional requirements.

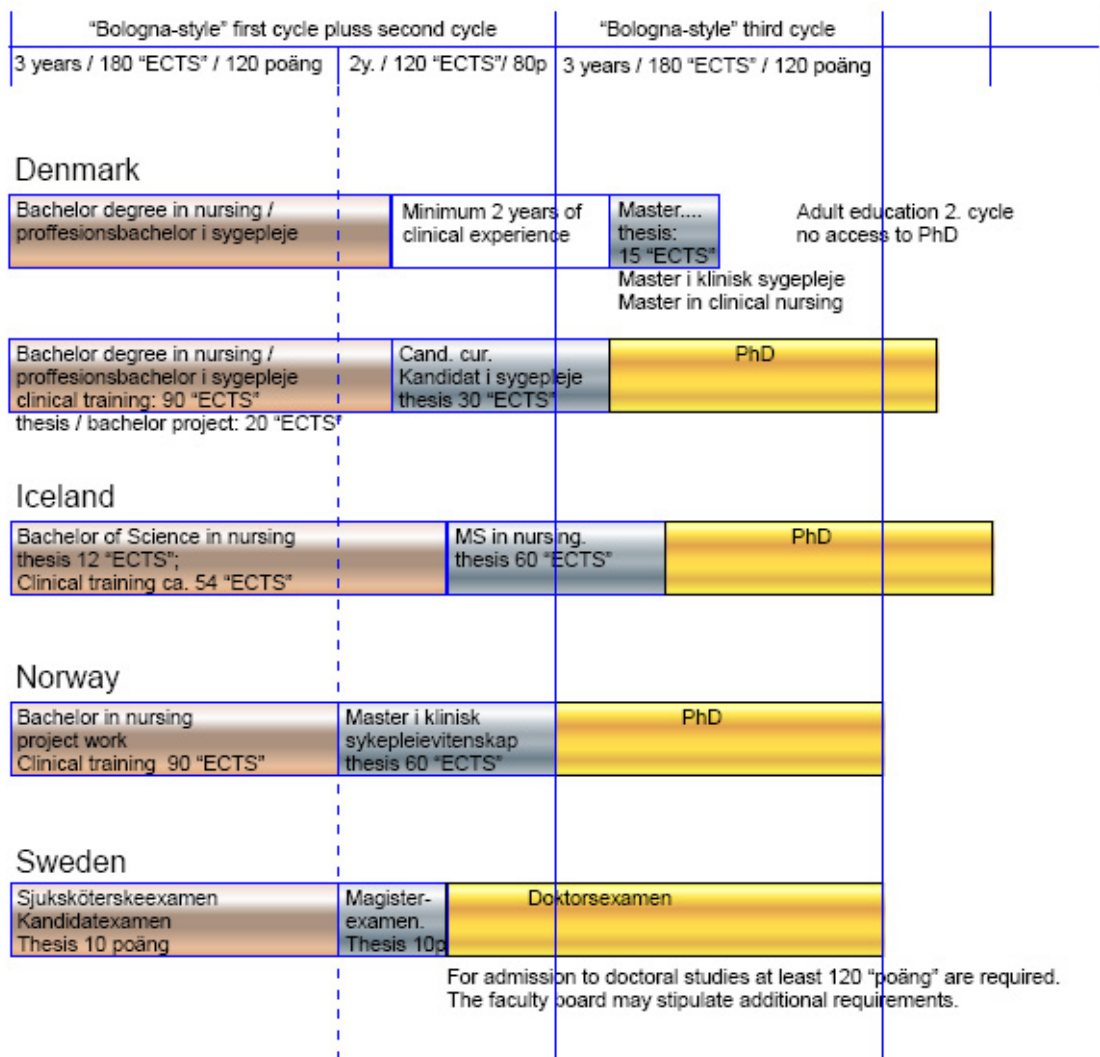
Choosing programmes to focus on

In considering the academic recognition of the Nursing degrees in the Nordic countries we may expect problems due to the considerable variation in the degree structures. Problems are expected at the latest, when dealing with the second cycle degrees. The assumption is that the recognition of the shorter Master's degrees may cause problems when they are part of a degree structure with a correspondingly short Bachelor's degree.

The group decided to look at the extreme ends of the degree structures and set the following question: How are the Swedish degrees following the 3+1 degree structure recognized in Iceland and, similarly, how are the Icelandic degrees following the 4+2 structure recognized in Sweden? We can argue that the difference between these degrees is a combination of differences in depth and breadth, as there are more courses in basic medical science as well as a greater emphasis on research methodology and the thesis (114 - 118 vs. 75 credits) in the Icelandic programme. Would students with the Swedish degrees be admitted to doctoral studies in Iceland, and would students with the Icelandic degrees get an advanced standing in the Swedish doctoral studies?

In addition to the Icelandic and Swedish Bachelor's and Master's degrees, the group decided to include the Danish 1-year Master's programme in the study and see to what extent the 1-year programmes could be compared.

Simplified structural diagram for Nordic nursing-programs



Higher education institution assessments

The Nursing qualifications were assessed by the Faculty of Nursing at *Aarhus University* in Denmark, the Faculty of Nursing at the *University of Iceland* in Iceland and the Nursing Institute at *Karolinska Institutet* in Sweden.

The *Karolinska Institutet* came to the conclusion that the Icelandic degrees were not comparable to the Swedish degrees, especially when looking at the second cycle level, as the Icelandic 4+2 programmes have more courses in basic medical science, a longer thesis and more research methodology. Nevertheless, there is no mention of advanced standing. The Danish degree was not considered comparable to the Swedish Master's degree either, but due to the lack of research methodology and scope in the thesis.

The *Aarhus University* came to the conclusion that the Icelandic degrees were comparable to the Danish degrees, but there was no consideration of advanced standing.

The Swedish Bachelor's degree might have been considered comparable to the Danish Professional Bachelor's degree but the Swedish Master's degree was not considered comparable to the Danish Master's degree, and it was considered unlikely that an applicant would be admitted to a Danish doctoral programme on the basis of this degree.

The *University of Iceland* came to the conclusion that the Swedish and Danish Bachelor's degrees would most likely not be considered comparable to the 4-year Icelandic degree giving access to Master's studies, but if the profile of the applicant included two years of work experience, the outcome might be different. The 1-year Master's degrees would not usually be considered comparable to the 2-year degrees, especially if they did not give access to doctoral studies in the country they were completed in. But again, the difference might be compensated by the applicant's extra research activity.

Enic/Naric assessments and feedback on assessments

The Danish Enic/Naric considered the Icelandic degrees comparable to the Danish *Professional Bachelor* and *Kandidat* degrees. The Swedish degrees were considered comparable to the Danish *Professional Bachelor* and one year of second cycle studies.

The Swedish Enic/Naric considered the Icelandic Bachelor's degree comparable to the Swedish *Kandidatexamen* and the Master's degree as comparable to the Swedish *Magisterexamen med ämnesdjup*. The Danish Master's degree was considered comparable to the Swedish *Magisterexamen med ämnesbredd*.

The Norwegian Enic/Naric considered the Icelandic Bachelor's degree comparable to the Norwegian Bachelor's degree plus one year (60 ECTS) at the Bachelor's degree level. The Icelandic Master's degree was considered comparable to the Norwegian Master's degree. The Swedish Bachelor's degree was considered comparable to Norwegian Bachelor's degree. The Swedish and Danish Master's degrees were considered comparable to one year of study (60 ECTS) at the Master's degree level.

The Icelandic Enic/Naric considered the Swedish Bachelor's degree comparable to a general Bachelor's degree in Iceland, but with less content than in the Icelandic Bachelor's degree in Nursing. The Swedish Master's degree was considered comparable to one year of studies (60 ECTS) at the Master's degree level. The Danish Master's degree was also considered comparable to one year at the Master's degree level.

Discussion and conclusion

The conclusions are to be taken with reservation as only three institutions participated in the case study.

It seems clear that differences in the structures of programmes may make transition from one structure to the next difficult. The 1-year Master's degree was not considered comparable to the 2-year Master's degree and students with the shorter Master's degrees would not have gained access to the doctoral programmes unless they had gained extra work experience or participated in extra research activities.

In sum, the shorter degrees are generally not considered comparable to the longer ones when it comes to admission to higher level programmes, because the programmes are considered lacking in depth as well as scope. Nevertheless, work experience and extra research activity may compensate for the difference. The same tendency was seen in the case of the engineering degrees.

It may also be concluded that students do not benefit from the longer programmes in admission to higher level studies by gaining advanced standing for the extra credits.

The differences between the programmes and the resulting problems of compatibility may be a surprise considering the fact that these programmes produce professionals for the same market, as the role of nurses is basically the same in all of the Nordic countries.

5. Case study no. 3: History

Present degrees

First cycle

The Matriculation examination from secondary school is a pre-requisite for access to all the programmes. The official length of the Bachelor's programmes is the same in all the countries, viz. three years or 180 ECTS credits. All the programmes include a final thesis or research project the size of which varies from 6 to 20 ECTS credits. The programmes are also flexible in their structures: the students complete core courses of 85 to 135 ECTS credits to which they may add elective studies from other subjects.

Second cycle

The access requirement to the second cycle degree in history in all the Nordic countries is the completion of the Bachelor's degree. In Iceland, the admission requirement includes a first class grade average.

The length of the second cycle programme is two years in all the countries except Sweden, where the programme lasts for one year, or is a coherent programme lasting for at least 4 years. The scope of the thesis or research project varies to some extent, with 20 - 40 credits in Finland; 30 in Sweden and Denmark; 40 - 60 in Iceland; and 60 in Norway.

Simplified structural diagram for Nordic history-programs

"Bologna-style" first cycle plus second cycle		"Bologna-style" third cycle	
3 years / 180 "ECTS" / 120 poäng	2y. / 120 "ECTS"/ 80p	3 years / 180 "ECTS" / 120 poäng	
Denmark			
Bachelor	Kandidat / cand.mag. thesis 30 "ECTS"	PhD	
Finland*			
kandidaatti / kandidat/ bachelor Thesis 6-10 "credits"	maisteri / magister / master Thesis 20-40 "credits"	licenciate + doctoral degree (2years + 2 years) or doctoral degree (4 years)	
Full degree names: Humanististen tieteiden kandidaatin tutkinto Kandidatexamen i humanistiska vetenskaper Bachelor of Arts	Filosofian maisterin tutkinto Filosofie magisterexamen Master of Arts	Filosofian lisensiaatin tutkinto Filosofie licentiatexamen Licentiate of Philosophy	Filosofian tohtorin tutkinto Filosofie doktorsexamen Doctor of Philosophy
Iceland			
Bachelor thesis 10-20 "ECTS"	M.A. degree. thesis 40 or 60 "ECTS"	PhD	
Norway			
Bachelor	Master. thesis ≥30 "ECTS"	PhD	
Sweden			
Kandidatexamen Thesis 10 poäng	Magister- examen. Thesis 10p	Doktorsexamen	
Finland*			
Magisterexamen med ämnesdjup. Thesis 20p (or 10p + 10p)		Doktorsexamen	

For admission to doctoral studies at least 120 "poäng" are required. The faculty board may stipulate additional requirements.

Higher education instution assessments

The higher education institution assessments were made by the *University of Oslo* in Norway, the *University of Aarhus* in Denmark, the *University of Iceland* in Iceland and the *Uppsala University* in Sweden.

Bachelor's degrees

All the Bachelor of Arts degrees in history from Denmark, Finland, Norway, Iceland and Sweden were assessed as comparable to the national degrees in the respective countries giving access to Master's level studies. In Norway, all the Bachelor of Arts degrees gave access provided that the grade obtained at the "depth unit" is equal to, or

greater than grade C, and qualified for applying to the Master's programmes. In Iceland, the Faculty of Humanities required students to have a grade point average of 7.25 or higher for entry into the Master's programmes.

Master's degrees

Master's degrees from Norway, Iceland and Finland were assessed as comparable to Master's degrees in Denmark giving access to doctoral studies.

Both Master's degrees from Sweden, the *magisterexamen med ämnesdjup* and *magisterexamen med ämnesbredd*, were considered short in comparison to the Master's degrees in Norway, Denmark and Iceland.

The Master's degrees from Denmark, Norway and Finland were assessed as giving access to doctoral studies in Iceland. However, each application is assessed individually and admission relies entirely on the research project and how it matches the competences of the faculty. The University of Iceland considered the final thesis of the Finnish and Danish Master's degrees to be less extensive than the one in their own programme. The Master's degrees from Sweden were also considered to require some additional work.

The Master's degrees from Norway, Iceland, Finland and Denmark were assessed as comparable to the Master's degrees in Sweden giving access to doctoral studies.

The Master's degrees from Iceland, Finland, Denmark and Sweden were not considered to be comparable in level, content, scope or learning outcome with a Norwegian Master's degree. The University of Oslo considered all the Master's programmes to have a less extensive thesis than the one in their own programme. The difference between the degrees was considered substantial as in Norway, a student is required to write a thesis worth 60 ECTS credits. Hence, students with less extensive theses, are required to extend their theses to 60 ECTS credits. Furthermore, the Swedish Master's degree was also considered one year too short. In sum, none of the Master's degrees from the other Nordic countries were considered to give access to doctoral level studies in Norway since they do not include a thesis worth of 60 ECTS.

Enic/Naric assessments:

Bachelor's degree

In general, the Bachelor's degrees from Denmark, Finland, Norway, Iceland and Sweden were assessed as comparable to the national Bachelor's degrees in the other countries. The differences that were pointed out concerned the extent of the thesis. The Finnish Bachelor's thesis is 4 - 7 credits, the Swedish thesis 15 credits and the Norwegian and Icelandic thesis 7 credits.

Master's degree

A Danish *Kand.mag* was evaluated as comparable to Icelandic Master's Degree and 2 years/120 ECTS of a Norwegian Master's Degree. At the Swedish Enic/Naric, it was compared to a Swedish *Magisterexamen med ämnesdjup*. The length in total for a

Danish *Kand.Mag* was seen to extend the length for a Swedish *Magister* with 1 year. Part of the Danish *Kand.Mag* may be considered as being at the Licentiat-level in the Swedish system. At the Finnish Enic/Naric, the level of the Danish degree was recognized as comparable to the level of the Finnish Master's degree.

A Finnish Master's degree was considered comparable to an Icelandic Master's degree. However, the size of the thesis (20 ECTS) might cause problems. A Finnish Master's degree was compared to 2 years/120 ECTS of a Norwegian Master's degree, again a possible problem might be the extent of the thesis. In Sweden, a Finnish Master's with the Bachelor's studies included was considered comparable to a Swedish *Magisterexamen med ämnesdjup*. Otherwise, the thesis and subject studies would not have been considered as enough compared with the Swedish studies of a major of 80 credits including a thesis of 20 credits or two theses of 10 credits each.

The Norwegian Master's degree was considered comparable to the Icelandic Master's degree and the Danish Master's degree. In Sweden it would have been compared to a Swedish *Magisterexamen med ämnesdjup*. The amount of credits for the thesis in the Norwegian Master's programme is the same as in the Swedish *Licentiatexamen*. At the Finnish Enic/Naric, the level of the Norwegian degree was recognized as comparable to the level of the Finnish Master's degree.

The Icelandic Master's degree was considered as comparable to 2 years/120 ECTS of a Norwegian Master's degree and comparable to the Danish *Kand.Mag*. The Icelandic Master's degree was considered as comparable to a *Magisterexamen med ämnesdjup* by the Swedish Enic/Naric. The degree was considered to be between the *Magister med ämnesdjup* and *Licentiat* because part of the studies is at the research level. The amount of credits for the thesis is the same as the amount of credits for the Swedish *Licentiatexamen*. At the Finnish Enic/Naric, the level of the Icelandic degree was recognized as comparable to the level of the Finnish Master's degree.

Discussion and conclusion

As the 3+2 degree structure is dominant in the field of history across the Nordic countries, there are only few obstacles for mobility from one Nordic country to the next. The assessments show that the Swedish one-year Master's degree is not academically recognized as comparable to the longer Master's degrees in Denmark, Iceland or Norway³. The Finnish Enic/Naric recognized the level of the Swedish degree to be comparable to the level of the Finnish Master's degree.

The assessments also show that the extent of the thesis or research project of the degrees may prove to be a hindrance for students wishing to continue their studies towards the doctorate.

6. Discussion and conclusions

The aim of the Bicycle project was to examine the boundaries between the different cycles of higher education, i.e. between the first and second cycle on the one hand, and

³ Finland only participated in the assessment partly and no results are given for Finland concerning academic recognition.

the second and third cycle on the other, and to see whether differences in the programme structures affect the mobility of students across these boundaries. Does difference in length make it difficult to go from one programme at first cycle level to the next at second cycle level, or from one programme at second cycle level to the next at third cycle?

As stated above, we must be aware of the limited number of cases and higher education institutions included in the study when drawing conclusions. Nevertheless, we feel the findings are a reflection of the greater issues behind them.

We have seen in our case studies that there is some difference in the assessment of the different degrees from one university to the other, and even between different staff members of the same university. Nevertheless, we can say that there are similar tendencies in the various assessments within the universities, between the universities and even between the Enic/Naric offices.

Our main finding is that the different degree structures may cause, or are more likely than not to cause, recognition problems. The shorter degrees in nursing are, for example, considered not to be comparable to the longer ones when it comes to access to the higher level programmes. It is the same for the fields of engineering and history, where the one year Master's degrees are generally not recognised as comparable to a 1.5- or a 2-year Master's degrees.

It is also interesting to see that students from the longer programmes do not benefit from the length when they go for higher level studies by getting any advanced standing for their extra credits.

In the case of engineering, the longer professional programmes may give general access to the academic Master's programmes, but the transition from professional programs to academic ones is only possible in most cases if students take some extra credits. As it turns out, instead of receiving advanced standing these students have to take extra credits. The main argument for this is that the level of particular academic subjects in the professional programmes, such as mathematics and physics, is not comparable to the level in the academic programmes. Thus, the lack of depth, or lack of breadth, is the decisive factor, but not the length. We would, however, hardly define this as a *recognition problem*, since this is also the case in the national contexts, for example when a person with a Finnish Bachelor's degree from a polytechnic wishes to enter an academic second cycle degree in Finland. The emergence of second cycle degrees that require work experience within the polytechnic sector in Finland, work-based degrees within the adult education sector in Denmark and within the ordinary degree system in Norway also provides new further education opportunities for holders of professionally oriented Bachelor's degrees.

The students from the longer Icelandic program in the field of Nursing do not gain advanced standing if they wish to continue in a second cycle programme based on a shorter (i.e. three years) Bachelor's programme. But the situation here is not as simple as this, as in this case it can be maintained that the difference in length between Bachelor's programmes reflects differences in breadth and depth. Even so, institutions in the other countries seem reluctant to give advanced standing based on credits taken in the longer programme.

Our presumption of differences in structures causing difficulties in transition from one cycle to the next is corroborated by findings in the assessment of history degrees. In the field of history where the 3+2 degree model is dominant there are few *recognition problems*. However, the short Swedish Master's degree causes problems, here as elsewhere, and the size of the research project or thesis may cause some problems when it comes to admission to higher level, mainly doctoral, programmes, particularly in Norway.

Overall, it may be concluded that the most problems of recognition were caused by the short Swedish Master's degree that does not fit the 3+2 model and limits the possibilities of its holders with regard to full recognition by the Enic/Narics as well as access to third cycle studies in the other countries, although it is a degree defined as providing access to third cycle studies. This shows very well how differences in structure affect the mobility of students across the boundaries of the different cycles.

Where do we go from here? It would be interesting to take this study some way further. Until now, we have been looking at how the different programmes are assessed by the universities and Enic/Naric offices. A new interesting approach would be to open up the definition of a *recognition problem*. Can we, for example, maintain that there is no *recognition problem* if the institutions that offer the degrees consider the recognition statements from other institutions to be in accordance with their own expectations? It might be revealing to send the assessments of the cases in this project to the institutions that offer the qualifications to have their response. It would also be interesting to consider these matters in a broader aspect, to look at non- 3+2 programmes from elsewhere in Europe.

When we assess the differences between the assessments of the universities on the one hand and the Enic/Naric offices on the other, they are best explained by the different approaches of the offices and the universities. The Enic/Narics look more at the form while the universities understandably lay more emphasis on the content. The Enic/Narics may therefore recognize a Bachelor's degree from another Nordic country as generally comparable to a Bachelor's degree in its own country, while the university would not consider it comparable to its own Bachelor's degree. This is especially clear in the assessment of the engineering degrees between the Icelandic Enic/Naric office and the University of Iceland.

Furthermore, it would be interesting to examine in more detail the formal entry requirements to programmes at second and third cycle level. As seen from this study, transferring with a professionally oriented Bachelor's degree in engineering into an academic Master's programme is difficult, because the formal entry requirements are not fulfilled. Similarly it is difficult to access doctoral programmes within the field of history in Norway without an extended Master's thesis. Prior experiences of Enic/Naric offices also show that entry to second cycle programmes in popular study areas with limited study places have caused institutions to define formal entry requirements that limit the access opportunities of students from other universities and/or other Nordic countries, although they follow the 3+2 model.

A question that might be worth considering is whether it is acceptable within the spirit of the Bologna process that professionally oriented Bachelor's programmes, particularly

those from binary systems, do not lead to direct admission into academic Master's programmes within the same field of study since this is not the primary aim of these programmes. Or could this be an obstacle to mobility that needs removing, either by reviewing formal entry requirements or reviewing the course requirements for the professionally oriented degrees? Does the introduction of second cycle degrees that require work experience completely fulfill the further education demands of the holders of professionally oriented Bachelor's degrees? Furthermore, are formal, specific entry requirements relevant and fair across the Nordic countries or do they in some cases represent unnecessary obstacles to mobility that limit the transfer of students from one degree level to the next across the Nordic countries and in a wider perspective across the European Higher Education Area?

Another question is will the definition of learning outcomes for individual courses and degree programmes change this picture, i.e. will the definition of learning outcomes make it easier for students to move from one degree level to the next across the Nordic countries.

It could also be interesting to investigate further the emerging internationally oriented Master's degrees of 1 - 1.5 years duration. To what extent are they driven by internationalization and how far by market forces? Are the shorter Master's programmes recognized as comparable in level, depth and scope to the 2-year Master's degrees and if so, what consequences will this have for the 2-year Master's?

Finally, we can ask ourselves some questions regarding differences in programmes. According to the Bologna Declaration, one of the strengths of the European Higher Education Area is the diversity in the area's education. Differences in the length of programmes are certainly adding to this diversity. We might even infer that deviations from the 3+2 model are positive in this context. But when we see that there is no clear pattern regarding the deviations from the 3+2 degree model we must ask for the reasons that lie behind the decisions of universities to offer longer programmes if they are generally recognized as comparable to shorter programmes. Moreover, we can ask whether these programmes will last in competition with the shorter programmes and why would students opt for a 4+2 year's Master's degree if they can gain a comparable qualification, with regard to both further studies and professional rights, with a 3+1 programme?

The Nordic countries form a common Nordic education area. At its best, this would entail that students can easily move from one degree level to the next across all the Nordic countries. Our findings, however, conclude that at this point in time this is clearly not always so.

Appendix

History of engineering programmes in the Nordic countries

In Finland, roughly between the 1970s and the early 1990s the training of engineers was provided by *Teknillinen opisto* -institutes (Institutes of Technology). The duration of training was three years with a compulsory training period of at least three months at the start of studies. Currently the degree falls under the Council Directive 89/48/EEC.

In the 1990s, within the emerging sector of professionally oriented higher education, the polytechnic sector, the engineering programmes were developed into polytechnic degrees of 4 years' duration (160 Finnish credits) called the *Tekniikan ammattikorkeakoulututkinto, insinööri (AMK)/ Yrkeshögskoleexamen i teknik, ingenjör (YH)/Bachelor of Engineering* (cf. Engineer in Marine Technology of 180 Finnish credits taking 4.5 years to complete). Since 2005, polytechnic degrees have been measured in ECTS-compatible credits: the first cycle polytechnic degrees in engineering consist of 240 ECTS-compatible credits taking 4 years to complete (cf. Engineer in Marine Technology of 270 ECTS-compatible credits taking 4.5 years to complete).

With the education reform of August 1, 2005, the second cycle polytechnic degree became a permanent part of the degree structure of higher education. The second cycle polytechnic degree in engineering is called *Tekniikan ylempi ammattikorkeakoulututkinto, insinööri (ylempi AMK) / Högre yrkeshögskoleexamen i teknik, ingenjör (högre YH) / Master of Engineering*. The scope of the degree is 60 or 90 ECTS-compatible credits taking 1 or 1.5 years to complete. Eligibility for the second cycle polytechnic degree is given by a relevant first cycle degree and at least three years of relevant work experience.

Within the university sector of higher education, there used to be only one-tier Master degrees. The *Diplomi-insinööri/Diplomingenjör/Master of Science in Technology* degree consisted of a minimum of 180 Finnish credits, taking at least 5 years of full-time studies to complete. With the education reform of August 2005, an obligatory first cycle degree was also introduced in the field of engineering: the degree of *Bachelor of Science in Technology (Tekniikan kandidaatin tutkinto /Technologie kandidatexamen)*. In the same reform the scope of the first cycle degree became 180 ECTS-compatible credits (3 years of full-time studies) and the scope of the second cycle Master of Science in Technology became 120 ECTS-compatible credits (2 years of full-time studies).

In sum, currently degrees in engineering are offered as first and second cycle degrees both within the polytechnic and the university sector of Finnish higher education.

Two different types of engineering programmes have been offered in Iceland through the years. The academic programme (*verkfræði*) at the University of Iceland used to be a 4-year programme towards the *cand. scient.* degree but which has been changed into a 3-year *BS* degree and a 2-year's Master's degree. The other Bachelor's programme (*tæknifræði*) is more professionally oriented. It used to be offered at the Icelandic College of Engineering and Technology which was established in 1964, upgraded to non-university higher education level in 1972, became a university in 2002 and merged with Reykjavík University in 2005. The Icelandic College of Engineering and Technology started awarding *tæknifræði* degrees as Bachelor's level degrees in 1975.

Qualifications from the college from before 1975 are not considered to be at university level.

In Norway, until 1987 engineering programmes building on upper secondary school were of 2 or 3 year's duration. From 1988, first cycle engineering programmes leading to the title of *høgskoleingeniør* became 3-year programmes. Within the university sector there existed one-tier programmes of 5 year's duration. With the new "Bologna-style" degrees introduced in 2002, the first cycle degree obtained status as a Bachelor's degree (*Bachelor i ingeniørfag*), but continued to be of 3 year's duration. Second cycle engineering qualifications can now be obtained in two ways. As a two-tier programme with a 3-year Bachelor's degree and a 2-year Master's degree leading to the title of Master of Science or as a one-tier programme of 5 year's duration leading to the title of *Master of Technology/Sivilingeniør*. Finally, higher education institutions may also offer international (English) Master's degrees of 1.5 year's duration or Master's degrees based on a Bachelor's degree and two years of work experience, also of 1.5 year's duration.

In the 1970s and 1980s there were two levels of engineering programmes in Sweden. At university level there was the 4-year programme leading to the degree *civilingenjörsexamen*, Master of Science in Engineering. In 1986 the programme was prolonged to a minimum of 4.5 years of study. At the upper secondary school level there was a 4-year technical line (T4) giving both general and professional training. No transfer credits were given from T4 to the Master of Science programmes. The 4th year of the technology line in upper secondary school was gradually discontinued when a new 2-year engineering programme was introduced in 1988/89 at university level leading to the degree *högskoleingenjörsexamen*, University Diploma in Engineering. The last batch of students graduated from T4 in 1992/93 and the new engineering programme at university level partly replaced the 4th year at upper secondary school. Students who successfully completed 3 years of upper secondary technology (T3) or scientific line fulfilled the general and specific entrance requirements for admission to the new 2-year engineering programme and also to the Master of Science-programme. Students who had successfully completed T4, fulfilled the general and specific entrance requirements for admission to a shortened programme, a 1-year programme, leading to *högskoleingenjörsexamen*, university diploma, equivalent to the new nominally 2-year engineering diploma programme at university level.

Today, these *högskoleingenjörsexamen*/University Diploma programmes have in most cases been prolonged to 3 and up to 4 years of studies (nominal length of studies) although the students can still graduate after two years of study. The 3-year programmes in many cases fulfill the requirements for the general degree *teknologie kandidatexamen*, Bachelor's degree, and the 4-year programmes in many cases for the general degree *teknologie magisterexamen*, Master's degree. The *teknologie magisterexamen* is either obtained after a 4-year one-tier programme or after a *magister* programme of 1 year's duration following a *teknologie kandidatexamen*. The minimum requirement of *magister* degrees is 4 years, but a growing number of *magister* programmes within the field of engineering have been extended from 4 years (3+1) to 4.5 or 5 years (3+1.5 or 3+2).

Students graduating with a *högskoleingenjörsexamen* may be given a credit transfer of 120 ECTS (2/3 of the *högskoleingenjörsexamen*) when continuing to a

civilingenjörprogram. 150 ECTS credits remains to be completed for the award of *civilingenjörsexamen*.

A possible restructuring of the degree structure based on the 2005 government proposal will also lead to changes within the engineering area. The *högskoleingenjör* or *kandidatexamen* will continue to have a duration of 3 years, but at the second cycle level there will be two different degrees: a 2-year “master examen” and a one year “magisterexamen”. Professional programmes, such as the *Civilingenjör* will continue to exist following the reform.

In Denmark, until 2001, there existed one-tier engineering degrees of 5 year’s duration within the university sector (*civilingeniør/Cand. Polyt*) and medium cycle professionally oriented engineering degrees of 3.5 year’s duration (*Diplomingeniør*) within the non-university sector. *Diplomingeniør* programmes are also offered at Danish universities. As of 2001, engineering degrees within the non-university sector obtained status as *professional bachelor* degrees. As the title professional Bachelor’s degree indicates, programmes still have a professional orientation. The professional Bachelor’s programmes give general access to 2-year Master’s degrees (*Civilingeniør/Cand.Polyt*), but admission may be based on additional course requirements. University programmes have been changed into two-tier programmes with a 3-year *BSc (civilbachelor)* and a 2-year Master’s degree (*Civilingeniør/Cand.Polyt*).

In the continuing or adult education sector in Denmark it is possible to obtain a second cycle engineering degree called *master* of 1 year’s duration (2 years part-time) based on a Bachelor’s level qualification and two years of work experience. Although the *master* qualification is not part of the ordinary degree structure in Denmark, it is defined within the national qualifications framework as an adult education degree at the second cycle level.

History of nursing programmes in Denmark, Iceland and Norway

Between 1990 and 2001, the Danish nursing programme was a 3.5-year medium cycle higher non-degree programme. In 2001, the nursing programme was changed into a first cycle professional Bachelor’s degree programme within the college sector. The new programme leads to the title Bachelor Degree in Nursing (B.N.) – in Danish “Professionsbachelor I sygepleje”.

The duration of the programme is still 3.5 years, but the aim and content of the programme have undergone some changes. Generally speaking, the programme has become more academic. Persons with the previous nurse qualification may only obtain the Bachelor’s title if supplementary courses are taken. Regarding access to Master’s programmes in nursing, persons with old nursing degrees must take supplementary courses in order to gain access, while persons with the Bachelor’s degree in nursing have direct access.

Nursing was offered at the Icelandic College of Nursing until 1977. The Nursing programme at the College was a 4 year’s programme and it was at the secondary school level. The qualification is not considered comparable to a university degree, but graduates from the College could transfer 2 years from the College to the university

programme. The university programme in Nursing was a 4 year's programme from the beginning.

In Norway, nursing was offered as a 3-year programme towards the *Høgskolekandidat* degree before the degree structure reform in 2002. Since the reform, nursing has been offered as a 3-year program towards the Bachelor's degree. The old *Høgskolekandidat* degree is considered comparable to the Bachelor's degree in academic recognition.

History of History programmes in Iceland and Sweden

History was offered as a 3 year's *BA* programme and a two year's *candidatus* programme at the University of Iceland until 1990 when the *candidatus* programme was changed to a Master's programme. The old *candidatus* degree in History is considered comparable to the Master's degree.

History programmes in Sweden include the three-year *kandidatexamen*, and the four-year *magisterexamen* (*magisterexamen med ämnesdjup*) or the *magisterexamen* of at least one year of full-time study (*magisterexamen med ämnesbredd*) based on a previous degree of at least three years. Postgraduate programmes nominally comprise 160 credit points (four years of full time-study) and lead to a doctorate. Within the *forskarutbildning* there is also a *licentiat examen* after two years of full-time study. *Licentiat examen* can be an intermediate degree in the doctoral programme.