Pharmacy education & training in

FINLAND

2010

Education and Culture DG
Lifelong Learning Programme

PHARMINE
Pharmacy Education in Europe

PHARMINE (PHARMacy education IN Europe) is a project funded by the European Commission (LLL programme, Erasmus). Its aims and objectives are to survey the present state of pharmacy education and training in Europe, and on the basis of this survey, formulate recommendations for new competence curricula for pharmacy education and training in the EU. A model for pharmacy education and training for candidate member states and other countries will be proposed. The opportunities for a quality assurance and accreditation scheme for EU pharmacy courses will be investigated.

PHARMINE will take into account two important issues, (i) the EU directive 2005/36/EC on the recognition of professional qualifications and, (ii) the Bologna declaration. PHARMINE will focus both on recommendations for core education and training and for activities such as industrial and hospital pharmacy.

The PHARMINE consortium consists of universities which are members of the European Association of Faculties of Pharmacy (EAFP) and EU partner associations representing community, hospital of industrial pharmacy, together with the European Pharmacy Students' Association and other interested bodies.

In order to reach the objectives of the PHARMINE project, a work-plan was set up and divided into 7 work-packages (WP).

The aims and objectives of PHARMINE WP7 are to:

1. Survey European higher education institutions (HEIs)
2. Produce a databank of pharmacy education and training courses in Europe leading to core pharmacist qualifications and to qualifications required for industrial and hospital pharmacy
3. Survey to what extent the "Bologna" (based on the principles enumerated in the Bologna declaration) and the "Sectoral profession" (based on 2005/36/EC) models for pharmacy education and training are compatible.

(See: The PHARMINE paradigm.pdf)

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Summary.

Pharmacies have a monopoly on the dispensation of medicines. They can also provide diagnostic services.

Proviisori, who act as responsible pharmacists, pharmacy owners and managers follow a 5-year (M.Sc. Pharm.) degree course with a 6 months' traineeship. *Farmaseutti*, who follow a 3 year (B.Sc. Pharm.) degree course (also with 6 months' traineeship) can dispense medicines and counsel patients in Finland under the responsibility of a pharmacist (M.Sc. Pharm.)

The first year of university study is devoted mainly to lectures of basic and applied sciences, while both the second and third years include 3-month traineeships. Thus traineeship comes early in the course.

Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects, patient counselling and medical sciences, and year 4 to drug industry and leadership/management related subjects. Advanced level subject specific courses and six months' research period and reporting (Master's thesis) typically end the university studies.

Industrial pharmacy is an integrated discipline at Helsinki University. There are plans to introduce specialization studies in hospital pharmacy in 2010.

Introduction.

Statistics for Finland.

(2006 unless otherwise indicated):

Total population: 5,261,000

Gross national income per capita (PPP international $): 33,170

Life expectancy at birth m/f (years): 76/83

Healthy life expectancy at birth m/f (years, 2003): 69/74

Probability of dying under five (per 1 000 live births): 3

Probability of dying between 15 and 60 years m/f (per 1 000 population): 132/57

Total expenditure on health per capita (Intl $, 2006): 2,472

Total expenditure on health as % of GDP (2006): 7.6

(From the WHO Statistical Information System (WHOSIS: http://www.who.int/whosis/en/index.html

See also: "World Health Statistics 2009, WHO".)

Highlights on health in Finland.

Finland has a compulsory, tax-based health care system, which provides comprehensive coverage for the entire resident population. The central government and municipalities are the main players in the organization of health care. At the national level, the Ministry of Social Affairs and Health issues framework legislation on health and social care policy and monitors implementation. At the local level, the municipal health committee, council and executive board make decisions on the planning and organization of care. Municipalities (444 in 2004) are also responsible for health promotion and disease prevention, primary medical care, medical rehabilitation and dental care. The country is divided into 20 hospital districts, each of which is a federation of municipalities responsible for arranging and coordinating specialized care within their area.

The state and municipalities levy taxes for health care. In 2002 about 43% of total health care costs were financed by the municipalities, 17% by the state (mainly through state subsidies), 16% by the national health insurance (NHI) and about 24% by private sources. Private financing has increased in absolute and relative terms, from 20.4% of total health expenditure in 1980 to 24.3% in 2002. This is accounted for by increases in user charges for municipal services, the abolition of tax deductions for drugs and other medical treatment costs, and reductions in the reimbursement of pharmaceuticals by the NHI. In 2002, total health expenditure comprised 7.3% of the gross domestic product (GDP) in Finland: the lowest level among the Nordic countries and lower than the European average. In the same year, health expenditure accounted for US$ 1943 (purchasing power parity) per capita. Public expenditure on health comprised 75.3% of total health expenditure."

(From the WHO "Highlights on health in Finland", 2004. (http://www.euro.who.int/Document/E88101.pdf))

Chapter 1. Organization of the activities of pharmacists, professional bodies

	Y/N, number or %	Comments.
Community pharmacy		
Number of community pharmacists	816 staff pharmacists + 590 pharmacy owners = 1406	There are 3839 bachelor-level graduates working in community pharmacies. The total number of employees in community pharmacies is ca 8000.
Number of community pharmacies	610+195	610 pharmacies and 195 subsidiary or branch pharmacies - the same medicines and services are available from both types of pharmacies There are approximately 1 pharmacist (M.Sc.) and 4.5 bachelor pharmacists per pharmacy, and 6600 inhabitants per pharmacy.
Competences and roles of community pharmacists		Pharmacists work as pharmacy owners, managers, responsible pharmacists, specialist pharmacists (may be specialized on multiple issues). Competences include administrative issues, customer service, medication review, marketing, education of pharmacy staff, multidisciplinary co-operation with other health care professionals. Pharmacists provide services to help patients monitor the therapeutic control of blood sugar or blood pressure. Internet pharmacies are not allowed.
Is ownership of a community pharmacy limited to pharmacists?	Yes	A licence to own a pharmacy is granted to a person having a 5-year degree on pharmacy with 6 months' traineeship. In Finnish HEIs this is the M.Sc. in pharmacy.
Are there rules governing the geographical distribution of community pharmacies?	Yes	The location of community pharmacies is based on the decision made by the National Agency for Medicines (NAM). NAM evaluates if there is a need for one (or multiple) community pharmacies in some particular area and specifies also the area where pharmacy/pharmacies should locate. In that specific area, pharmacies are free to choose their exact location. This is to assure the equal accessibility to medicines and pharmacy services for the whole population.
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Usually no	In Finland, medicines are sold to the public only from pharmacies, with the exception that NRT (nicotine replacement) products may also be available in grocery shops. Veterinary drugs are also available from veterinarians.
Are persons other than pharmacists involved in community practice?	Yes	Only persons with either a B.Sc.Pharm. or a M.Sc.Pharm. degree are allowed to dispense and counsel patients on medicines. A pharmacist (M.Sc.degree) is responsible for the operation of the pharmacy.
Their titles and number(s)	3839 2627	"*Farmaseutti*" with a B. Sc. (Pharm.), corresponds to "Pharmacy Technicians". "Technicians" with upper secondary vocational education (corresponds to "Pharmacy Assistants")

		However, only pharmacists with either B.Sc. or M.Sc. degree are aloud to dispense/sell medicines and counsel patients on medicines.
Their qualifications		
Organisation providing and validating the E&T		Three universities provide pharmacy education in Finland. University of Helsinki and University of Kuopio provide both B.Sc. and M.Sc. degrees and Åbo Academi University, Turku only B. Sc. Degrees
Duration of studies (years)	3	
Subject areas		Following the Bologna process, pharmacy education is divided into two parts. All the students follow the same curriculum the first three years and graduate with a B.Sc. degree. Approximately one third of the students continue additional two years to graduate with the M.Sc. degree. Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects and medical sciences. "Technicians" study logistics, accounting and IT-skills. Education consists of some theoretical studies and a great deal of in-house training.
Competences and roles		<u>B. Pharm</u> Similar to pharmacists, but does not involve pharmacy ownership, management or in-depth scientific issues. Main focus in customer service and patient counselling. In summary Both B.Sc. and M.Sc. graduates are involved in dispensation and counselling. Ownership of a pharmacy and/or a position of responsible pharmacist are restricted to M.Sc. graduates. <u>Technicians</u> Their main task is to take care of medicine storage and logistics in the community pharmacy. They also take care, for example, of invoicing and management of pharmacy IT systems.
Hospital pharmacy		
Does such a function exist?	Yes	
Number of hospital pharmacists	545	470 (B.Sc.) + 75 (M.Sc.)
Number of hospital pharmacies	Around 224	There are 24 hospital pharmacies that are in central hospitals and about 200 medicine centres which are in other hospitals or healthcare centres. University hospitals are the largest hospitals in Finland. There are five university hospitals that are located in the bigger cities (Helsinki, Tampere, Turku, Oulu, and Kuopio: in cities where there is a university with a medical faculty). Central hospitals are the most central and larger hospitals in some particular hospital district. Each central hospital is under the supervision of a given university hospital.
Competences and roles of hospital pharmacists		In most hospitals the hospital pharmacy or the medicine centre is one of the medical service departments. The manager of a hospital pharmacy is required to have a M.Sc. in pharmacy while the manager of a medicine centre is required to have a M.Sc. or B.Sc. in pharmacy. A manager of a hospital pharmacy or a dispensary is usually authorised by the medical director of the hospital. For more details see "Hospital Pharmacies in the EU", European Association of Hospital Pharmacists, 2002, http://www.eahp.eu and European Hospital and Healthcare Federation http://www.hope.be/ B. Sc. and M. Sc. hospital pharmacists used to have a logistic role in hospitals

	[redacted]	and healthcare centres. The role is now starting to change and some pharmacists are working in the wards. Finland does not have clinical pharmacy services as yet because there is no education for that. A new post-graduate specialization program for hospital pharmacists will start in 2010 so they will have stronger competencies to work as clinical specialists.
Pharmaceutical and related industries		
Number of companies with production, R&D and distribution	4	Pharmaceutical production: 869 million€ Pharmaceutical exports: 651 million€; imports: 1457 million€ (balance -806 million€) Research and development: 239 million€ Employment in the pharmaceutical industry: 6185 Pharmaceutical market value: 1848 million€ Share of generics in market sales: 20 % The above figures are from: "*The Pharmaceutical Industry in Figures*". European Federation of Pharmaceutical Industries and Associations, EFPIA, Key figures 2009 Expenditure on health care as % GDP: 7.4% Expenditure on medicines as % GDP: 1.2% From OECD health at: http://www.oecd.org/topic/0,3373,en_2649_37407_1_1_1_1_37407,00.html
Companies with production only	3	
Companies with distribution only	2	
Industrial pharmacy		
Number of pharmacists working in industry	400 M.Sc. and 400 B.Sc.	
Other sectors		
Number of pharmacists working in other sectors	320	This information is based on the report by Akava - Confederation of Unions for Professional and Managerial Staff in Finland in 2008. Available online (in Finnish): http://www.akava.fi/files/771/Akavalaiset_tyomarkkinat_2008.pdf
Sectors in which pharmacists are employed	[redacted]	Academic sector, e.g. pharmacists working in universities and research organizations (160) Administration, e.g. pharmacists working in Finnish national authorities (National agency of medicines, Ministry of Social Affairs and Health, National Insurance Institution) (60) Other: un-specified (100)
Competences and roles of pharmacists employed in other sectors		Teaching, research, administration, management and leadership Varying roles and competencies: specialist pharmacists (pharmacists specialized in some specific issues, for example, marketing authorizations, pricing and re-imbursement of medical products, IT-issues such as e-prescriptions and databases, medicines information), researchers, managers
Roles of professional associations		
Registration of pharmacists	Yes. There are ca 2000 registered pharmacists in Finland.	Issued by Valvira (National supervisory authority for Welfare and Health) From the NAM ("National Agency for Medicines") website: Under section 40 of the Medicines Act, a licence from the National Agency for Medicines is needed in order to operate a retail pharmacy. According to the provisions of section 43 of the Medicines Act, a pharmacy licence may be granted to a citizen of any state belonging to the European Economic Area who is a licensed Master of Science (Pharmacy), and who has not been declared bankrupt or incompetent to manage his or her affairs. If there are several applicants for a pharmacy licence, it shall be granted to the applicant

		who may be considered best qualified to operate the pharmacy. Applicants' qualifications in this field are assessed by considering the competence and aptitude for the business that they have shown in their earlier work in pharmacies and other tasks relating to pharmaceutical services. A pharmacy licence which falls vacant is declared open to applications through a notice in the Official Gazette.
Creation of community pharmacies and control of territorial distribution	Yes	Issued by Lääkelaitos (National Agency of Medicines). From 1.11.2009 FIMEA (Finnish Medicines Agency)
Ethical and other aspects of professional conduct	Yes	There is an advisory board on ethical issues in pharmacies based on the co-operation between AFP (pharmacy owners' association) and SFL (Finnish pharmacists' association). Additionally there exists a national ethical code of conduct produced by above mentioned organizations. In order to strengthen the role of community pharmacies in health care and to support the professional development, the Association of Finnish Pharmacists established a national strategy in 1997 that concerned pharmacy services and pharmacy role in health care. This strategy highlighted the importance of medication counselling in community pharmacies: whenever medicines are dispensed, information should also be provided. National long-term programmes focusing on chronic diseases (asthma, diabetes, heart diseases) have been organized to encourage local co-operation between pharmacies and other health care professionals and to develop the competency and counselling skills of pharmacy staff.
Quality assurance and validation of HEI courses for pharmacists	No	The universities providing pharmacy education have their own quality handbooks and quality assurance procedures. In the University of Helsinki for example feedback is collected from students and both internal and external / international audits are made regularly.

Websites	
Finnish Medicines Agency (FIMEA)	www.fimea.fi
National Supervisory Authority of Welfare and Health (VALVIRA)	www.valvira.fi/en/
Pharma Industry Finland	www.pif.fi/
Association of Finnish Pharmacies	www.aptekkariliitto.fi/english/sivut/default.aspx
Finnish Association of Pharmacists (Farmasia) (represents, pharmacists, dispensers and students)	www.farmasialiitto.fi
The Finnish Pharmacists' Association (represents, pharmacists and students)	www.proviisoriyhdistys.net
Service Union United (PAM) Pharmacy section (represents "technicians" who work in community pharmacy)	www.apteekkialanosasto.fi/
The EURYDICE database on education systems in Europe (Finland)	http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf
ECORYS: "Study of regulatory restrictions in the field of pharmacies". ECORYS Nederland BV, 22 June 2007.	http://ec.europa.en/internal market/services/pharmacy en.htm
European Federation of Pharmaceutical Industries and Associations (EFPIA)	www.efpia.eu/Content/Default.asp?PageID=317
Pharmaceutical Group of the EU (PGEU)	http://www.pgeu.org/
European Association of Hospital Pharmacists (EAHP)	http://www.eahp.eu/

European Industrial Pharmacists' Group (EIPG)	http://www.eipg.eu/
European Hospital and Healthcare Federation (HOPE)	http://www.hope.be/
WHO health statistics	www.who.int/whosis/en/index.html
WHO Finland	www.euro.who.int/Document/E88101.pdf

Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
Total number of HEIs for pharmacy	3	Helsinki, Kuopio, Turku. In total, there are 20 universities in Finland.
Public	3	
Organisation of HEIs		
Independent faculty	Yes	University of Helsinki, Faculty of Pharmacy University of Kuopio, Faculty of Parmacy
Attached to a science faculty	Yes	Åbo Akademi University, Faculty of Mathematics and Natural Sciences, in Turku
Other (please specify)	None	The faculty structure of the University of Kuopio will change in 2010. The Faculty of Pharmacy will be merged with the medical faculty and other institutions into a Faculty of Health
Do HEIs offer B + M degrees?	Yes	Universities of Helsinki and Kuopio
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes	
Finland		
Teaching staff		
Number of teaching staff (nationals)		ca 260
Number of international teaching staff (from EU MSs)		ca 30
Number of international teaching staff (non EU)		ca 10
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		ca 50
Students		
Places on entry after secondary school	375 + 100	The numbers are rounded.
Number of applicants for entry	1300	3.5 applicants for 1 place.
Number that become professional pharmacists.	375 BSc + 100 MSc	
Number of international students (from EU member states)	ca 30	
Number of international students (non EU)	ca 10	
Entry requirements following secondary school (national)		
Specific pharmacy-related, national entrance examination	No	Each HEI has its own entrance examination
Entry requirement at a national level	No	Each HEI sets its individual entry requirements
Is there a national *numerus clausus*?	No	Each institution sets its individual *numerus clausus*.
Advanced entry		
At which level?		In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but they cannot become licensed Masters in Pharmacy.

Specific requirements for international students (EU or non EU).		Language requirements in Finnish and English for B. Sc. and M. Sc. The courses taught in English in Helsinki are listed at www.helsinki.fi/pharmacy/studying/courses.html
Fees per year		
For home students	0	There are no tuition fees for national nor international students
For EU MS students	0	
For non EU students	0	
Length of course	**3 + 2 years**	
Specialization		
Do HEIs provide specialized courses?	Yes	
In which years?		Both after completing the Bachelor's degree and the Master's degree
In which specialisation (industry, hospital…)?		Industrial Pharmacy, hospital pharmacy
Past and present changes in E&T		
Major changes since 1999?	Yes	Industrial pharmacy has been introduced as a discipline at the University of Helsinki
Are any major changes envisaged before 2019?	Yes	Start of specialist education of hospital pharmacy in the University of Helsinki
Helsinki		
Teaching staff		
Number of teaching staff (nationals)		ca 130
Number of international teaching staff (from EU MSs)		ca 15
Number of international teaching staff (non EU)		ca 5
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		ca 25
Students		
Places on entry after secondary school	170 + 50	
Number of applicants for entry	360 + 360	Three candidates per place.
Number becoming professional pharmacists.	170 + 50	
Number of international students (EU)	15	
Number of international students (non EU)	10	
Entry requirements following secondary school		
HEI has a specific pharmacy-related entrance examination	Yes	
Advanced entry		
At which level?		In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but they cannot become licensed Masters in Pharmacy.
Specific requirements for international students (EU / non EU).		Language requirements in Finnish and English for B. Sc. and M. Sc. The courses taught in English in Helsinki are listed at www.helsinki.fi/pharmacy/studying/courses.html
Fees per year : Free for all students		

Length of course	**3 + 2 years**	
Specialization		
Does your HEI provide specialized courses?	Yes	Industrial pharmacy has been introduced as a discipline at the University of Helsinki
In which years?		Both after completing the Bachelor's degree and the Master's degree
In which specialisation (industry, hospital…)?		Industrial pharmacy The discipline of industrial pharmacy includes product development, manufacturing, marketing, distribution and quality assurance of all these areas. From 2008 onwards "industrial pharmacy" is a full discipline at Helsinki university *i.e.* students can specialise in industrial pharmacy during their M.Sc. (4th-5th years) and follow up with a PhD having industrial pharmacy as the major. In addition to industrial pharmacy Helsinki also proposes pharmaceutical technology as major discipline focusing on the manufacturing technologies and excipients. Level 1 (knowledge of industrial pharmacy for all pharmacists): The courses for B.Sc. students are: Obligatory: Pharmaceutical technology lectures, 8 ECTS, laboratory work, 8 ECTS Optional: Practice in pharmaceutical industry, 2-6 ECTS (1 month/2 ECTS) Market authorisation application for drug products, 3 ECTS Written report on pharmaceutical technology, 3-5 ECTS In addition to above, M.Sc. students have the following courses (4th year): Obligatory: Development of drug product, 4 ECTS Business economy and management, 9 ECTS Level 2 (knowledge of industrial pharmacy for all industrial pharmacists): For those M.Sc. students who specialise in industrial pharmacy (5th year): Obligatory studies, 15 ECTS: Formulation I (tablet formulation), 5 ECTS Biopharmacy in product development, 3 ECTS Good manufacturing practice (GMP) of drug products, 7 ECTS Master thesis, 40 ECTS Optional studies, 15 ECTS has to be chosen from the subjects below: Leadership of experts, 4 ECTS Formulation II (controlled release preparations), 4 ECTS Formulation III (all other drug forms), 6 ECTS Quality management and quality systems, 6 ECTS Operations of pharmaceutical industry and distribution, 4 ECTS Pharmaceutical business course, 3 ECTS Book examinations, 1- 8 ECTS Product development, laboratory course, 5 ECTS Physical pharmacy 5 ECTS Product development and experimental design, 3 ECTS Seminars and excursion, 2 ECTS Control of drug release, 3 ECTS Solid state analysis of pharmaceutics, 3 ECTS

		Pharmaceutical excipients, 3 ECTS Granulation and compression technologies, 3 ECTS In addition to these courses, Helsinki is planning to start courses in registration, clinical studies and product and technology patenting. These could constitute level 3 (knowledge of specialised areas of industrial pharmacy for given sector of industry). CPD/LLL: In addition to these level 1 and 2 courses above Helsinki also gives specialised studies for those who have a B. Sc. and/or M. Sc. Degree and are working full time in industry. These are free (no fees), 60 ECTS for M.Sc. and 40 ECTS for B.Sc. Hospital pharmacy in the future
What are the student numbers in each specialization?	8 BSc + 20 MSc	The yearly intake of Bachelors is 8, there is no *numerus clausus* for the Master level.
Past and present changes in E&T		
Have there been any major changes since 1999 in Helsinki?	Yes	New professorships were established in social pharmacy (funded by the University Pharmacy) and industrial pharmacy in 2002 and a professorship in pharmaco-economics was established in 2005, also funded by the University Pharmacy. Up to the end of 2003 pharmacy was a department of the Faculty of Sciences, but since the beginning of 2004 the Faculty of Pharmacy was started. The new curriculum according to the Bologna process was introduced from the autumn semester 2005 for Bachelor students and a year later for Master students.
Are any major changes envisaged before 2019 in Helsinki?	Yes	At the moment the hospital pharmacy specialization programme is being planned. Student admission (about 8 students, not decided yet) will be accepted in spring 2010 and teaching will start in autumn 2010.
Is Helsinki typical of all HEIs in Finland?	Yes	

Websites	
University of Helsinki	www.helsinki.fi/university/
University of Kuopio	www.uku.fi/english/
Åbo Akademi University, Turku	www.abo.fi/public/?setlanguage=en

Chapter 3. Teaching and learning methods

Student hours

Method	Year 1	%	Year 2	%	Year 3	%	Year 4	Year 5
Lecture	310	54	265	30	106	14	148	44
Practical	160	28	48	5	36	5	20	40
Project work	103	18	56	6	75	10	45	15
Subtotal	*573*		*369*		*217*		*213*	*99*
Traineeship Community	0	0	520 (= 13 weeks)	59	520 (= 13 weeks)	71	0	0
Subtotal	*573*		*889*		*737*		*213*	*99*
Electives: choice	30		26		76		32	138
Total	*603*		*915*		*813*		*245**	*237**

*: this represents only part of the M.Sc. course of the fourth and fifth years (see chapter 4).

The first year is devoted mainly to lectures and the second and third years to traineeship.

Chapter 4. Subject areas

Student hours

Subject area	Year 1	%	Year 2	%	Year 3	%	Year 4§	%	Year 5§
Chemical sciences	16 ETCS 248-260 h	38	5 ETCS 48 h	5			11 ETCS 134 h	31	
Physical and mathematical sciences	5 ETCS 36 h	5					4 ETCS 34 h	8	
Biological sciences	4 ETCS 44 h	7							
Pharmaceutical technology	8 ETCS 60 h	9	14 ETCS 260 h	26	1 ETCS 8 h	1	12 ETCS 150 h	35	
Medical sciences	14 ETCS 154 h	23	18 ETCS 118 h	12	14 ETCS 160 h	19			
Law, ethics and societal sciences	3 ETCS 30 h	4	4 ETCS 40 h	4	5 ETCS 42 h	5	13 ETCS 100 h	23	
Generic subjects	9 ETCS 95 h	14	16 ETCS 540 h*	54	26 ETCS 630 h*	75	1 ETCS 15 h	4	
TOTAL	*673*		*1006*		*236*		*433*		

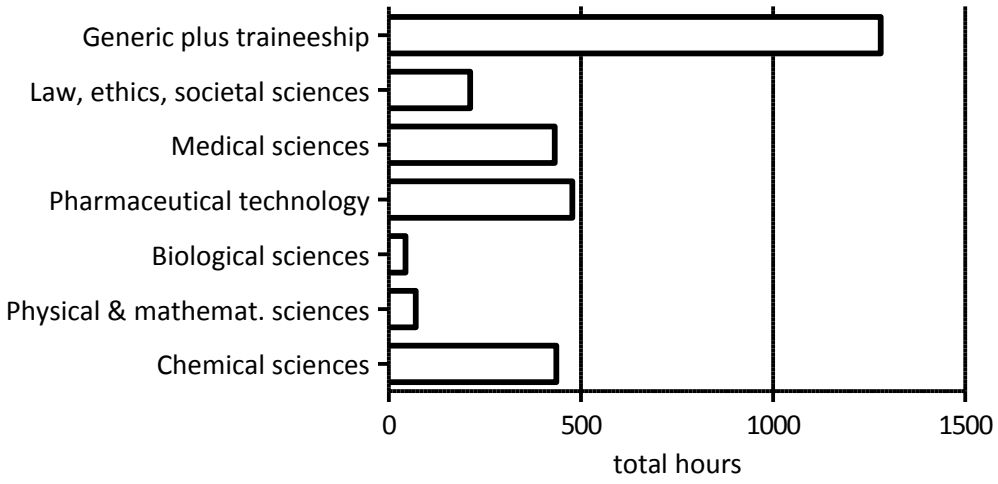
The hours calculated in every column, represent the time scheduled for lectures, assignments and group works. The time a student takes for individual work is not calculated here. Students also have to take 18 ETCS of elective studies for BSc. These hours have not been calculated here, as the hours spent vary for each student and may even be on non-pharmaceutical subjects.

§: in the MSc degree (120 ETCS) the students take 50 ETCS general studies (of which 9-16 ETCS are elective studies) and 70 ETCS major studies. The amount of hours spent in every subject area in major studies varies from student to student. Due to this it is difficult to give an average number of hours. In the 4th year studies only the 41 ETCS general studies are given.

*: traineeship hours are counted as “generic subjects” hours.

Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects and medical sciences, and year 4 to chemical sciences and pharmaceutical technology.

Total hours over the course for the various subject areas.



Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied?	Comments.
1. Comparable degrees / Diploma Supplement	Yes	Each graduating student receives a diploma supplement.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	We have a 3 year Bachelor and a 2 year Master programme according to the Bologna Agreement. Entrance is permitted each year for 140 students (B.Sc.) and 55 students (M.Sc.). Bachelors graduate after 3 years and Masters after 5. It is possible for a person with a B.Sc. (Pharm.) to gain entrance in the M.Sc. (Pharm.) programme if passing an entrance exam. <u>In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but they cannot become licensed Masters in Pharmacy.</u> Bachelors in Pharmacy are employed in Finland and Sweden in community pharmacies, hospital pharmacies, industry *etc*. They constitute the main work force in Finnish community pharmacies. In other parts of Europe the degree is not recognized.
3. ECTS system of credits / links to LLL	Yes	All our courses are built according to the ECTS system based on a yearly workload of 1600 h. We accept ECTSs obtained in other European countries to the full. Our students get ECTS-points for the compulsory traineeship included in their degree. Since the traineeship is 6 months, the points given are 30, *i.e.* 5/month. All HEI in Finland use ECTS-based credit points since 2005. The ECTSs gained before and after graduation are comparable.
4. Obstacles to mobility	Yes	The biggest obstacle to student mobility is the strictly organized curriculum, which does not easily allow students to move. If they are willing to prolong their studies by a half or one year, mobility becomes much easier. In reality, this means, that most of our exchange students choose to do their Master's project abroad, because by this stage in their university career they have fewer compulsory courses. Language and financial considerations are no major obstacles to mobility.
5. European QA	No	
6. European dimension	No	

ERASMUS staff exchange to your HEI from elsewhere	Number of staff months: 0,25
ERASMUS staff exchange from your HEI to other HEIs	Number of staff months: 0,25
ERASMUS student exchange to your HEI from elsewhere	Number of student months: Ca 100
ERASMUS student exchange from your HEI to other HEIs	Number of student months: Ca 50

References to texts and articles of national law
Valtioneuvoston asetus yliopiston tutkinnoista 794/2004 (Government Decree on University Degrees 794/2004) www.finlex.fi/en/laki/kaannokset/2004/20040794 Laki terveydenhuollon ammattihenkilöistä 559/1994 (Act on Health Care Professionals 559/1994) www.finlex.fi/en/laki/kaannokset/1994/19940559 Asetus terveydenhuollon ammattihenkilöistä 104/2008 (Decree on Health Care Professionals 104/2008)
Other references to texts and articles of national law
EU Directive 85/432/ETY

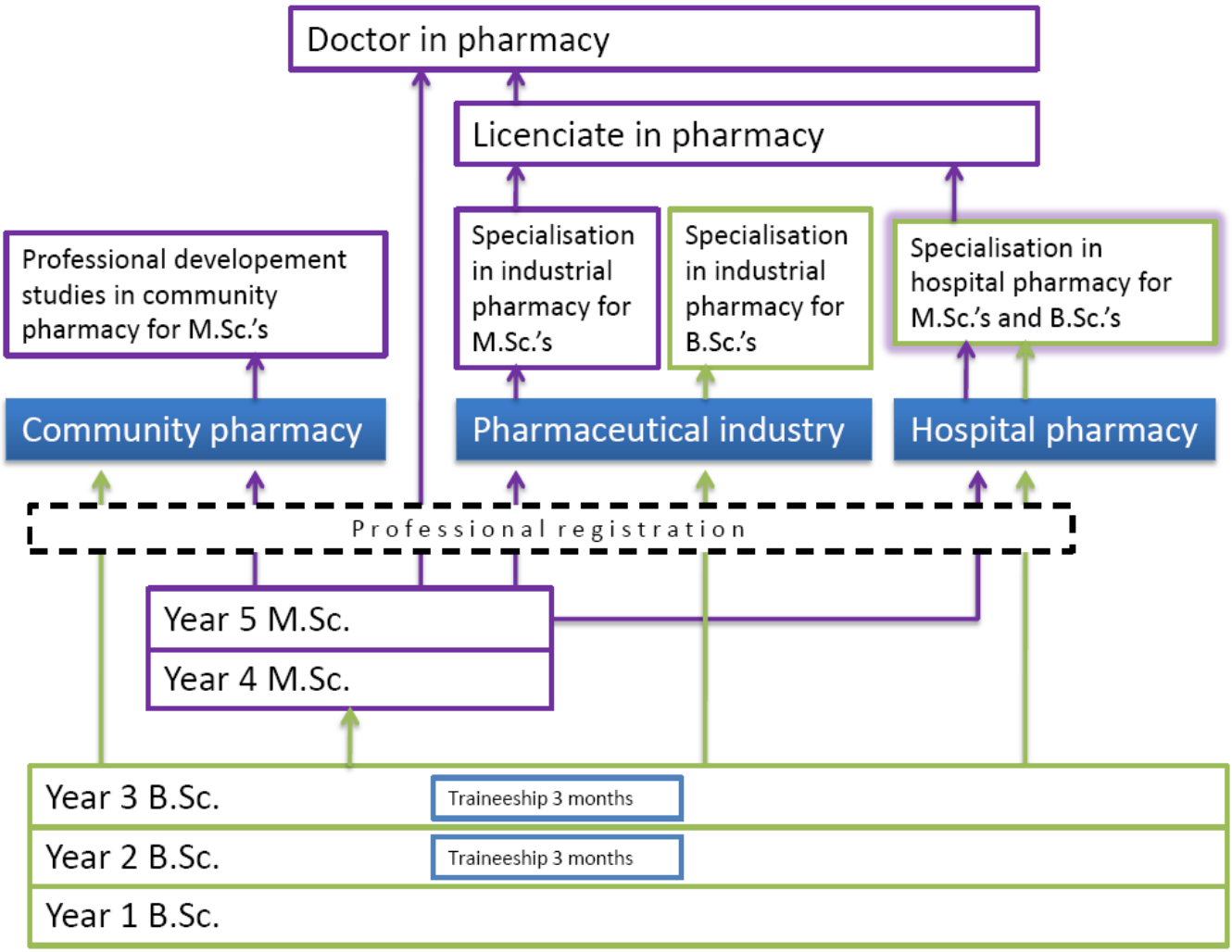
Chapter 6. Impact of EC directive 2005/36/EC

The directive states	How does / will this directive statement affect pharmacy E&T?
"Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration,</u>…"	This statement does not apply to the first phase of Bologna process, B. Sc. degree in Pharmacy. This statement was obviously taken into consideration when the curriculum for the M.Sc. (Pharm.) degree was developed within the concept of the Bologna principles. The new Master curriculum began autumn 2006.
"…<u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;"	Master students study 4.5 years at the university, so this requirement is fulfilled.
"…<u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department."	Both Bachelor and Master students perform the six-month traineeship. At least three months have to be spent in a community pharmacy and the remaining three months can be spent in a community or hospital pharmacy. The first three months of traineeship is performed in the second study year and the second three months during the third year.
"The balance between theoretical and practical training shall, in respect of each subject, give <u>sufficient importance to theory to maintain the university character of the training</u>."	This point was object of intensive discussion during the degree reform according to Bologna. From the university point of view we need to place emphasis on the theoretical knowledge in order to prepare the students for further studies (Ph.D.).

Directive annex	Comments	Subjects to be added
V.6. PHARMACIST **5.6.1. *Course of training for pharmacists*** **Plant and animal biology / Physics / General and inorganic chemistry / Organic chemistry / Analytical chemistry / Pharmaceutical chemistry, including analysis of medicinal products / General and applied biochemistry (medical) / Anatomy and physiology; medical terminology / Microbiology / Pharmacology and pharmacotherapy / Pharmaceutical technology / Toxicology / Pharmacognosy / Legislation and, where appropriate, professional ethics.**	All these aspects are taken into consideration and all the subjects mentioned are taught.	Genetics and biotechnology.

Note that no barriers exist to pharmacists from other EU countries. A pharmacy licence is granted to EEA (European Economic Area) citizens only if they are M.Sc. (Pharm.) graduates (Medicines Act, section 41)

References to texts and articles of national law
Valtioneuvoston asetus yliopiston tutkinnoista 794/2004 (Government Decree on University Degrees 794/2004) Laki terveydenhuollon ammattihenkilöistä 559/1994 (Act on Health Care Professionals 559/1994) Asetus terveydenhuollon ammattihenkilöistä 104/2008 (Decree on Health Care Professionals 104/2008)



The Finnish scheme for pharmacy education and training.
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