Ministry of Education and Science of Ukraine

Kharkov State Technical University of Radioelectronics

Set of Manuals
on Accounting Credits for Courses and Projects

Kharkov 2000

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Set of Manuals
On Accounting Credits for Courses and Projects

for students, supervisors, reviewers, examining board and university subdivisions

Approved by Department of Artificial Intelligence
Minutes № 24
11.07.2000

Kharkov 2000

Contents

Introduction..... 5

1 Structure of the User's guide ……. 6

2 European Credit Transfer System (ECTS)……..……..... 7

3 Main features of Ukrainian higher technical education……..…….....11

4 Recommendations on using European Credit Transfer System for the faculty/department administration ……..…… 14

5 Web-based consulting system for credit transfer and course recognition ……18

Appendix

Appendix 1.
EUROPEAN CREDIT TRANSFER SYSTEM (ECTS) .....……..……... 18
Appendix 2.
STUDENT APPLICATION FORM…..…….....…... 44
Appendix 3.
TRANSCRIPT OF RECORDS ...…….....……. 47

Appendix 4.
LEARNING AGREEMENT....…….....……. 49

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Acknowledgements

The authors thank the members of Computer Sciences and Informational Systems Department of Jyvaskyla University, Finland for their assistance in acquaintance with organization of educational process in the University, and Katherine Galanaki, international collaboration pro-rector of Economics and Business University in Athens, Greece for the consultation on the international programs SOCRATES/ERASMUS.

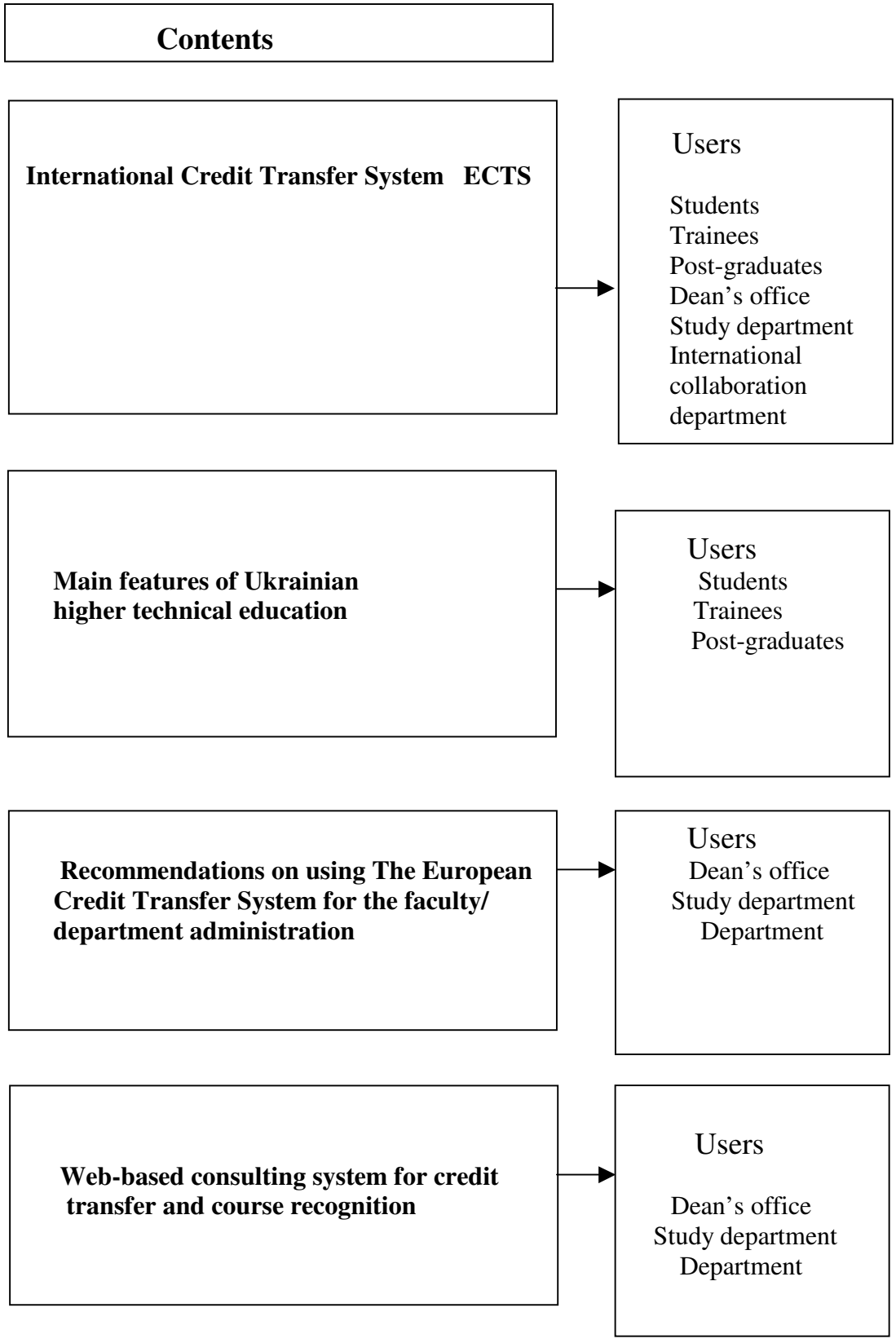
Introduction

The present guide is a result of the work within the TEMPUS UM_CP-20560-1999 project on investigating of the International European Higher Educational System, based on the EUROPEAN CREDIT TRANSFER SYSTEM (ECTS).

The authors of this guide set the following tasks:

- first of all, acquaintance of the Ukrainian user, from a dean to a student, with the International European Higher Educational System based on ECTS in view of multi-stage studying in the educational institutions of the European Union;
- providing the reader the information about main concepts of educational process management by the example of Kharkov State Technical University of Radio Electronics (Kharkov, Ukraine), and its differences from the European Educational System.
- elaboration of the requirements for informational and methodical-organizational support of the higher educational institution faculty on introduction of the ECTS model into the educational process (by the example of Computer Science faculty of Kharkov State Technical University of Radio Electronics, Kharkov, Ukraine)
- acquaintance of the Ukrainian user with particular features of the ECTS Information Package.

1 The User's Guide Framework



2 European Credit Transfer System

(ECTS review according to the «ECTS USERS' GUIDE» release)

In December 1996 the group of recognized specialists, Higher Educational Institutions and EU-RECTORS' Conferences Confederation representatives was established by the European Commission, the Council of Europe and UNESCO/CEPES. The working group was aimed to elaborate the international standard of education model. The group developed the European Credit Transfer System ECTS.

EUROPEAN CREDIT TRANSFER SYSTEM (ECTS) program's original models can be found in the Internet on http://nscnt2.elte.hu/elte/nko/ERASMUS/L'Hects.htm, and Appendix 1 of this Guide contains a brief version.

ECTS has national and international applications. It has been developed to assist solving international problems in the academic recognition of qualification in the countries of the European Union since national educational systems and qualification structures are undergoing change under the influences of economic, technological and other factors. In the circumstances students, who want to proceed their education in other country of the European Union, or moving people require the clear interpretation of their specialties and qualifications.

European Credit Transfer System ECTS is the tool that demands a correct application. The approach defined by system development provides comparatively objective estimation of information. ECTS doesn't guarantee the automatic recognition or approval of the qualification. The proposed approach facilitates the process of making decisions by the independent national or local academic organizations. The recognition of foreign specialties and qualifications should be considered a creative process that estimates experience and learning achievements rather than searches their accurate equivalence.

ECTS is a credit-based system.

ECTS credits are a numerical value (between 1 and 60) allocated to course units to describe the student workload required to complete them. They reflect the quantity of work each course unit requires in relation to the total quantity of work necessary to complete a full year of academic study at the institution, that is, lectures, practical work, seminars, tutorials, fieldwork, private study - in the library or at home - and examinations or other assessment activities. ECTS is thus based on a full student workload and not limited to contact hours only.

In ECTS, a credit equals 27 hours, and 60 credits represent the workload of an academic year and normally 30 credits for a semester. It should be taken into account that the number of grades on the ECTS grading scale is 7. The ECTS grade scale is represented in table 2.1

Table 2.1 THE ECTS GRADING SCALE

ECTS Grade	**Percentage of successful students normally achieving the grade**	**Definition**
A	10	EXCELLENT – outstanding performance with only minor errors
B	25	VERY GOOD –above the average standard but with some errors
C	30	GOOD –generally sound work with a number of notable errors
D	25	SATISFACTORY- fair but with significant shortcomings
E	10	SUFFICIENT - performance meets the minimum criteria

FX	-	FAIL- some more work required before the credit can be awarded
F	-	FAIL- considerable further work is required

The form of the academic documentation should meet some requirements according to the ECTS requirements. The curriculum elaborated at Kharkov Technical University of Radio Electronics for the Intelligent Decision Support Systems speciality is given below as an example. The curriculum meets the ECTS requirements.

Software Engineering Specialized on Mobile Communications

I. Structure of Major Study Program on Software Engineering: "Intelligent Decision Support Systems"

General Studies

GH 1. History of Ukraine	(6 ECTS)
GH 2. Basics of Law	(4)
GH 3. Philosophy	(6)
GH 5. History of Religion	(2)
GH 7. Basics of Politics	(4)
GH 8. Psychology	(2)
GH 9. Computers in Society	(2)
GH 14. Physics I	(15)
GH 39. Orientation to University Studies	(4)
Total	**45**

Language Studies

LG 4+12. Ukrainian Language I	(6)
LG 10. Foreign Language I	(3)
LG 10. Foreign Language II	(3)
LG 10. Foreign Language III	(3)
LG 10. Foreign Language IV	(3)
Total	**18**

Mathematics and Mathematical Models

MM 13. Approbatur in Mathematics	(6)
MM 13. Calculus, Symbolic Mathematics	(8)
MM 13. Differential and Integral Calculus	(6)
MM 16. Basics of Discrete mathematics	(7)
MM 17. Probability Theory	(4)
MM 34. Statistics and Data Mining	(6)
MM 19. System Analysis	(7)
Total	**44**

Software Engineering

SE 15. Computer Graphics	(3)
SE 15. Web Design	(3)
SE 18. Programming I	(6)
SE 18. Programming II	(6)
SE 25. Operational Systems and Data Communication	(8)
SE 36. Software Engineering I	(3)

SE 36. Software Engineering II	(4)
SE 37. Object-Oriented Programming	(4)
SE 38. Algorithm Theory and Formal Methods	(6)
SE 50. Human-Computer Interaction	(6)
SE L. System Development Project	(12)
Total	**61**

Artificial Intelligence

AI 26. Intelligent Database Management	(6)
AI 29. Artificial Intelligence I	(7)
AI 35. Programming in Prolog	(5)
AI 40. Machine Learning	(4.5)
AI 42. Decision Support Systems	(4)
AI 44. Intelligent Agents and Virtual Worlds II	(7)
AI 46. Logical Techniques in AI	(3)
AI 47. Search Techniques and Optimisation	(4.5)
Total	**41**

Hardware and Electronics

HN 22. Basics of Electrical Engineering	(3)
HN 23. Hardware	(4)
HN 24. Microprocessors	(4)
HN 28. Computer Networks	(4)
HN 43. Networking Technologies	(4)
Total	**19**

Economics

EC 6. Basics of Economics	(2)
EC 20. Introduction to Environmental Management	(2)
EC 21. Introduction to Environmental Management	(2)
EC 31. Basics of Economics	(2)
EC 32. Introduction to Environmental Management	(2)
EC 33. Management	(2)
EC 49. Basics of Software Business	(6)
Total	**18**

Information Systems

IS 27. Information Technologies	(6)
IS 30. Object-Oriented Analysis and Design	(4)
IS 41. Internet Technologies	(6)
IS 48. Information Systems Analysis and Design	(6)
IS 51. Computer-Supported Co-operative Work	(4)
Total	**26**

2. Description of Minor Studies on Moblile Communications

	Subject	ECTS
1	Signals and processes in radio engineering	10
2	Electrodynamics and radio waves propagation	7
3	Microwave devices and antennas	6
4	Fundamentals of Information Transmission Theory	3
5	International radio communication and radio exchange	4
6	Radio communication systems	4
7	Radio links for communication systems and television	3
8	Official and commercial radio communication equipment	6
9	Mobile radio communication systems	3
10	Global Information Systems	4
11	Practical Training	10
TOTAL	**Minor Studies on Mobile Communications**	**60**

Figure 2.1. The Curriculum Example (ECTS)

The Software Engineering Specialised on Mobile Communications plan amounts 2 parts:

1. **Structure of Major Study Program on Software Engineering: "Intelligent Decision Support Systems".**
2. **Description of Minor Studies on.**

The first part represents all the stages of student's preparation on the basic IDSS speciality:

- Basic training
- Language training
- Mathematics and mathematical models
- Economics
- Informational systems, etc.

Each subject in the stage is associated with the identification code that consists of the brief code of the corresponding stage and the serial number of the subject. The next is the course name in English and then the course duration in the ECTS credits is set. There is a total number of credits for the stage at the end of each section of subjects.

The additional **Mobile Communications** disciplines are listed in the second part of the Curriculum.

The annotation in due form should be represented for each discipline in the Curriculum for fundamental understanding its structure and contents. An example of BASICS OF DATABASE SYSTEMS course annotation is given below.

Course code .....IS12 semester.....4 credits.....2
The dataware engineering. The database technology (DB). Data models. Hierarchical. Net. Relational. The relational model, data operations. The entity-relation model. Normalization. The Infological data model. The datalogical data model. The Database Control Systems. The dataware engineering methodology.
Lecturer ..... the assistant professor of the Artificial Intelligence Department, Candidate of Technical Science, Martin D.
Oral examination, coursework

Figure 2.2. The Course Annotation Example

To give the adequate interpretation of qualification level the Information Package was developed by different educational institutions within the ECTS. The Informational Package consists of **Student's Application**, **Transcript of Records** and **Learning Agreement** (Appendix 2-4).

The Informational Package is based on the important principle of respect of the national and international academic independence.

The developed package of documents is intended to describe the features, the level and the contents of subjects that were successfully passed by individuals. The information provided should cover all the units. If the information is absent, the reason should be explained.

The Informational Package filled correctly can become the base document to make decisions on further studying in the educational institutions of the European Union.

The next sections of the Guide contain the suggested version of the Informational Package based on the structural changes in the faculty/department learning documentation. It will help to organize accumulation and storing of source data required to get the recognition of achieved qualification in European Credit Transfer System ECTS, to realize student exchange in the European Union, to integrate with the European educational system.

3 Main Features of the Ukrainian Higher Technical Education.

Having gained the independence (1991), sovereign Ukraine started its own policy in the field of higher education. The efforts were directed to achieve the up-to-date world level, to recreate the original national character, to renovate radically contents, forms and methods of education, to increase the intellectual potential of the country.

During last 3 years, the government monopoly in the field of higher education was overcome. The higher educational institutions with different forms of ownership were established: commercial, private, joint and international institutions, which provided higher education for many of the students who graduated from secondary schools and colleges. Development of paid and free education opened the opportunity to train specialists on commercial basis on the one hand, and significantly reduced the entrance opportunities for those individuals, who has no possibility to pay for the education.

Radical changes in the higher education content was associated with elaboration and introduction of new curriculums in 1993, where the differentiated approach to the specialist training for teaching, business and research purposes was realized. The availability of these plans forced the higher education to meet social and educational demands for the today's specialist.

Possessing the great scientific potential and being the leading educational institutions, universities are traditionally the first-rate centers of highly qualified specialist training. They are called to provide research, political, cultural and legal society institutions, administrative, planning, directive state executives, industry, medicine, and educational system with specialists of different profiles.

Having large groups of leading scientists and a complex of research and educational departments, the universities are the major cultural and educational centers.

The basic documents that regulate training of students in one or another technical specialty are "Educational Qualification" approved by the Ministry of Education of Ukraine, and the Curriculum developed on basis of recommendation of the Ministry of Education. A fragment of a typical Curriculum for the IDSS speciality is given in the Figure 3.1.

THE CURRICULUM

№	Disciplines	Semesters Allocation				Total Hours	Lecture Hours				Independent classes
		Examination	Tests	Control works	Course works		Total	Lecture	Practice classes	Laboratory classes	
1	2	3	4	5	6	7	8	9	10	11	12
	Cycle of Humanities and Socioeconomic Sciences										
1	Philosophy	4		4		108	54	36	18		54
	TOTAL					1188	606				
	II. Exact Scientific Training										
1	Higher mathematics	1,2,3		4		540	350	192	158		190
2	Probability theory	3		1		108	72	36	36		36
	TOTAL					1944	1152				
	III. Professional and Practical Common Training by the Trend										
1	Circuit engineering of computer		3			162	72	36	24	12	90
2	Data- and knowledge base management	4				162	96	52	12	32	66

	TOTAL					1620	986				
	III. According to the Enumeration										
1	Object-oriented programming		6			108	72	36		36	36
	TOTAL					864	576				
	III.2. According to the University's Original Election										
1	Java programming	8				108	72	34	18	20	36
	TOTAL					810	518				
	III.3. According to the Student's Original Election										
1	International marketing		5			108	54	28		26	54
	TOTAL					756	378				
	TOTAL					7182	4344				
	Specialist and Master Training					918					
	1. Cycle of Humanities and Socioeconomic Sciences										
	TOTAL					162	106				
	2. Cycle of Standard Subjects										
	TOTAL					378	186				
	3. Cycle of Elective Subjects										
	TOTAL					378	194				

Figure 3.1. The Curriculum Fragment

The disciplines of the curriculum are divided into the following blocks:

- Training of Bachelor
- Training of Specialist
- Training of Master

with indication of time for their studying. Today in Ukraine, 54 hours of workload are accepted to equal 1 credit. The curriculum discipline names, hours and national credits can be found below.

Bachelor Training

C-1 Cycle of Humanities and Socioeconomic Sciences	**1188**	**22**
C-2 Exact Sciences Training	**1944**	**36**
C-3 Professional and Practical Common Training in Trend	**1620**	**30**
C-4 According to the Enumeration	**864**	**16**
C-5 According to the University's Original Election	**810**	**15**
C-6 According to the Student's Original Election	**756**	**14**
	7182	**133**

Specialist and Master Training

C-7 Cycle of Humanities and Socioeconomic Subjects	**162**	**3**
C-8 Cycle of Standard Subjects	**378**	**7**
C-9 Cycle of Elective Subjects	**378**	**7**
	918	**17**

The Curriculum represented above differs from the Curriculum adapted to the ECTS with its workload planned not in credits, but in teaching hours. Besides, the plan provides for a regulated planning and limits the selection of subjects to study.

On basis of the Extracts from the Curriculum, the dean's office and the Study and Methodic Department of the university should work out a semester timetable. The number of hours should not exceed 36 hours per week. The academic year includes 2 semesters ending in the examinations.

The basic regulative documents in the National Educational System of Ukraine are the Test and Exams Sheet, where teachers should record grades or some other assessment of student's knowledge. The Sheet doesn't record the number of hours or credits for the subject.

In Ukraine the number of grades is 4, unlike 7 on the ECTS grading scale. Grades and criteria are represented in Table 3.1

Table 3.1 Knowledge assessment grading scale

Grade	Criterion
Excellent	Outstanding performance with only minor errors
Good	Above the average standard but with some errors
Satisfactory	Generally sound work with a number of notable errors
Unsatisfactory, Not permitted, absence	Some more work required before the credit can be awarded

Period of studying in the majority of the Ukrainian universities, and so in KTURE, amounts to 10 semesters, including the graduation practical training and the graduation work. There are several different kinds of practical training, both production and graduate.

On graduating a student receives a standard higher education diploma, where student's qualification and specialty are given. After 4 years of studying the graduated student receives the Bachelor's Diploma, and after 5 years of studying one receives the Specialist's Diploma or the Master's Diploma. The Diploma Appendix, where all the courses with their amount in hours and with grades are recorded, is attached to the Diploma.

If the training was interrupted, the ex-student receives the Academic Certificate, standardized by the Ministry of Education of Ukraine, where all the courses passed with their amount in hours and with grades are listed.

The analysis above demonstrates that the specialist training in Ukraine and the corresponding document operations differ from the ECTS.

The basic differences are:

1. The teaching period is not planned in credits, but in teaching hours
2. In Ukraine the number of grades is 4, unlike 7 on the ECTS grading scale.
3. The number of disciplines, the way of selection and the teaching period differ from the ECTS norms.

   Nevertheless, it should be mentioned that the existing differences are not a matter of principle and can be corrected at the levels of dean's office and department.

4 Recommendations on using The European Credit Transfer System for the administration of the faculty and the department

To provide a possibility to compare the national knowledge and qualification evaluation system to European Credit Transfer System, the learning documents should be changed. The documentation that accompanies the teaching process from planning to graduating may remain unchanged. It is enough to correct the department or dean's office database by including the required information in Russian, Ukrainian and English.

The basic possible changes in the documentation stored in the database at the dean's office or at the department are listed in 4.1-4.4.

4.1 The Specialty Curriculum (Figure 4.1) are to be supplemented with the "ECTS CREDITS" column .

THE CURRICULUM

№	Disciplines	Semester Allocation				Total hours	Lecture Hours					ECTS Credits
		Examinations	Tests	Control works	Course works		Total	Lecture	Practical Classes	Laboratory Classes	Independent Classes	
1	2	3	4	5	6	7	8	9	10	11	12	13
	Cycle of Humanities and Socioeconomic Sciences											
1	Philosophy	4		4		108	54	36	18		54	2
	Total					1188	606					44
	2. Exact Scientific Training											
1	Higher Mathematics	1,2,3		4		540	350	192	158		190	20
2	Probability Theory	3		1		108	72	36	36		36	4
	TOTAL					1944	1152					72
	3. Professional and Practical Common Training by the Trend											
1	Circuit technique of computer		3			162	72	36	24	12	90	6
2	Data- and knowledgebase management	4			4	162	96	52	12	32	66	6
	TOTAL					1620	986					60
	4. According to the enumeration											
1	Object-oriented programming		6			108	72	36		36	36	4
	TOTAL					864	576					32
	5. University's Original Election											
1	Java programming	8				108	72	34	18	20	36	
	TOTAL					810	518					30
	6. Student's Original Election											
1	International Marketing		5			108	54	28		26	54	
	TOTAL					756	378					28

	TOTAL					7182	4344					266
	Specialist and Master Training					918						34
	7. Cycle of Humanities and Socioeconomic Sciences											
	TOTAL					162	106					6
	8. Cycle of Standard Subjects											
	TOTAL					378	186					14
	9. Cycle of Elective Subjects											
	TOTAL					378	194					14

Figure 4.1. The Fragment of the Modified Curriculum

Besides, the additional curriculum formed according to the ECTS Informational Package standard (Figure 2.1) should be stored in the database.

4.2 The disciplines in the Curriculum (Figure 4.1) are grouped in cycles, both cycles and disciplines are matched with the appointed number of hours.

To convert the workload in hours into the ECTS credits, in authors' opinion, the following simple algorithm can be used within the educational process organization system of Ukraine:

fill the added column in the Curriculum taking into account that a National credit equals to 54 hours, (One ECTS Credit) = 27 hours, or

$$\textbf{One ECTS Credit= (Total hours / 54) *} k_i \textbf{,} \qquad \textbf{(4.1)}$$

where k_i is a weight factor of the discipline, generally equal to 1.

As a result, we obtain the workload in hours (or national credits) or in #ECTS credits using the simplest scheme.

Bachelor Training (BCR)

C-1 Cycle of Humanities and Socioeconomic Sciences	**1188**	**22**	**44**
C-2 Exact Sciences Training	**1944**	**36**	**72**
C-3 Professional and Practical Common Training in Trend	**1620**	**30**	**60**
C-4 According to the Enumeration	**864**	**16**	**32**
C-5 According to the University's Original Election	**810**	**15**	**30**
C-6 According to the Student's Original Election	**756**	**14**	**28**
	7182	**133**	**266**

Specialist and Master Training (MCR)

C-7 Cycle of Humanities and Socioeconomic Subjects	**162**	**3**	**6**
C-8 Cycle of Standard Subjects	**378**	**7**	**14**
-9 Cycle of Elective Subjects	**378**	**7**	**14**
	918	**17**	**34**
Total (SCR)	**8100**	**150**	**300**

If the department or faculty considers the disciplines in some cycles (or the cycle on the whole) to be of great importance in the specialist training, it is suggested to select the factor k_i depending upon their contribution from 1 to 3. It is necessary to maintain the total number of credits that matches the

bachelor training – BCR, the master and specialist training – MCR, and the total planned number of credits - SCR.

Therefore the Modified Curriculum will contain all the necessary information about the disciplines in the curriculum and their weight in the ECTS credits.

4.3 The national knowledge evaluation system (Table 3.1) differs significantly from the ECTS knowledge evaluation system (Table 2.1). The version in the Tables 4.1 and 4.2 is proposed to agree these evaluation systems.

Table 4.1 Knowledge evaluation system with $k_i \geq 2$

Grade	ECTS Level	Criteria
Excellent	**A**	Outstanding performance with only minor errors
Good	**C**	Generally sound work with a number of notable errors
Satisfactory	**D**	Fair but with significant shortcomings
Unsatisfactory, Not permitted, absence	**FX**	Some more work required before the credit can be awarded

Table 4.2 Knowledge evaluation system with $k_i < 2$.

Grade	ECTS Level	Criteria
Excellent	**B**	Above the average standard but with some errors
Good	**C**	Generally sound work with a number of notable errors
Satisfactory	**E**	Performance meets the minimum criteria
Unsatisfactory, Not permitted, absence	**F**	Considerable further work is required awarded

This scheme of comparative knowledge evaluation allows the automatic conversion of the knowledge value in the National scale into the ECTS knowledge level. The acquired information are to be recorded in the column “ECTS Level” in control list.

4.4 For every discipline in the Curriculum (Figure 3.1) the annotation according to the form (Figure 4.2) should be provided:

Course name ....
Course Code .....semester..... credits .....
Course Contents..... (in 10 lines)
Lecturer .....
Test type (examination, test, written, oral)

Figure 4.2. The Course Annotation Form Example.

In conclusion, the following should be pointed. Storing the modified documentation in Russian, Ukrainian and English - modified Curriculums, annotations for all the disciplines in curriculum, Test and Exams Sheets - provides the simple way to form and fill the informational Package of the international credit transfer model ECTS.

5 Web-based consulting system for credit transfer and course recognition

Borys Omelayenko

http://www.cs.jyu.fi/ai/projects/tempus99/manualseng.html

5.1 Introduction

The second outcome of the Project is targeted to 'Developing the set of Manuals for accounting credits for courses and projects', that must contain the new model of diplomas grade list, instruction for assigning credits for internal courses, external courses and distance courses.

During the project work we identified that the manuals for paperwork are not sufficient to improve the situation with credit transfer and credit accounting in KhTURE. The main obstacles to this are:

- administrative staff in the Dean's office has low knowledge of English;
- the staff does not understand European credit transfer system very well because of big differences to Ukrainian system and the above mentioned luck of English;
- different European universities exploit different credit accounting schemes; after the documents of a student are translated into ECTS an additional effort of the administrative staff is still needed to match the courses;

We found that students in Ukraine want to participate in EU exchange programs but they do not know where to find information about credit transfer. The main problem here is that the students need some automated and ultimately available source of credit transfer information to evaluate how their courses taken in Ukraine will be recognized by some EU university.

European students also need such a resource to quickly find the list of courses that they can take in some certain university, and to evaluate their ability to get a degree in it.

Finally, international offices of the universities in Europe need such a tool to ..

Finally, ordinary students need this information source to plan their studies and courses in the universities

The previous project idea was to develop guidelines for translating of Ukrainian academic documents into some European documentation system to allow fast and easy credit transfer and course recognition. The retrainings held during the project cleared out that this is insufficient, and we need to build some document transfer system to facilitate this. This shift is illustrated in Figure 5.1. This forced us to start developing of a web-based tool for credit transfer. The tool must be open for a wide community and provide all major knowledge about credit transfer and course recognition in European universities. It must combine the features of an inexpensive consulting system and contain enough normative information about credit transfer and course recognition in the universities.

The rest of the document describes the architecture of the system, basic models and data structures, usage issues and further development directions of the system.

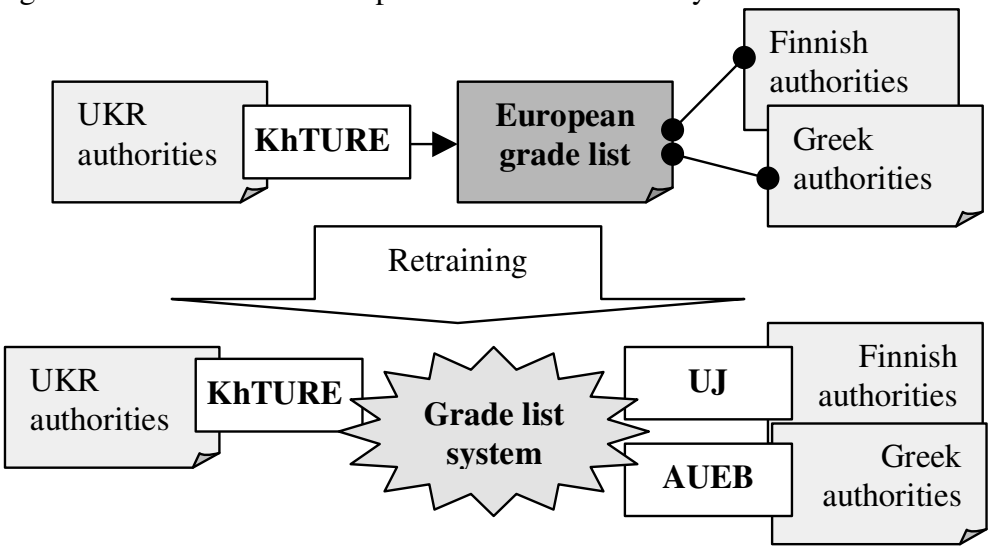


Figure 5.1. The new look on credit transfer and course recognition process

5.2 The technology for the system

The wide target user group of the system and limited development resources available for the team highlighted several requirements for the technology to be used. The system might be:

- Web-based do guarantee easy access of a wide community of users;
- Open and have easy understandable architecture and principles because it is posed as a kind of standard consulting system;
- Scalable to include new members easily;
- Easy and clearly documentable to be acquired by the community;

The most suitable technology for such a system is XML toolkit for Internet-based data storage, representation and manipulation. We selected XML technology because

- It provides a set of standards, recommended by standard organization (WWW consortium www.w3c.org);
- XML is already a standard technology for information interchange;
- All components of the system might be represented in plain text files, easy to read and understand;
- It is already accepted by software vendors and packages;
- It is principally web-based and open;
- And it comes with a complete architecture.

The basic XML toolkit includes four main components:

- XML files with actual data;
- DTD or XSL with structure for the XML-data. All users are forced to keep this structure;
- XSL style sheets define the way to browse the XML-data;
- Standard means for web interface (CGI and JavaScript) for the system.

The way how the system must work is presented in Figure 5.2.

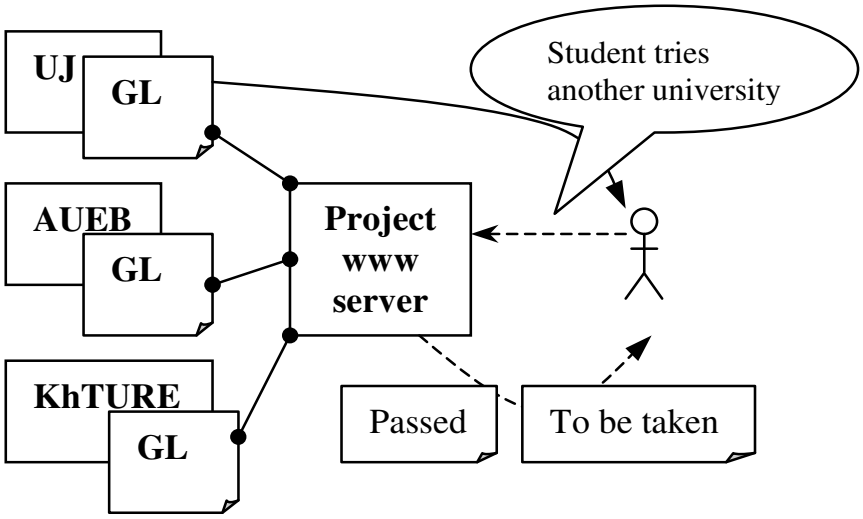


Figure 5.2. The way of system functioning

The consortium of participating universities uploads their grading requirements and course offering to the system web site. The data is presented in a special format and processed by the web server. We expect a user (a student, or an administrative staff officer) to browse the web site and to communicate with the system through web user interface. The student receives his list of passed courses from his department in a special XML-based format and uploads it to the server. Then he selects the university he wants to try to study (or get a degree), and receives the two reports: the list of

courses that are recognized by the university he tried, and the list of courses in might pass to get a degree in the latter university. The system will contain information about course correspondence, mutual course recognition by the universities, and grade requirements of the universities.
In a similar way the system will consult administrative staff and provide them with the report on curriculum similarity.

5.3 The Architecture

The schema of file interrelation is presented in Figure 5.3.

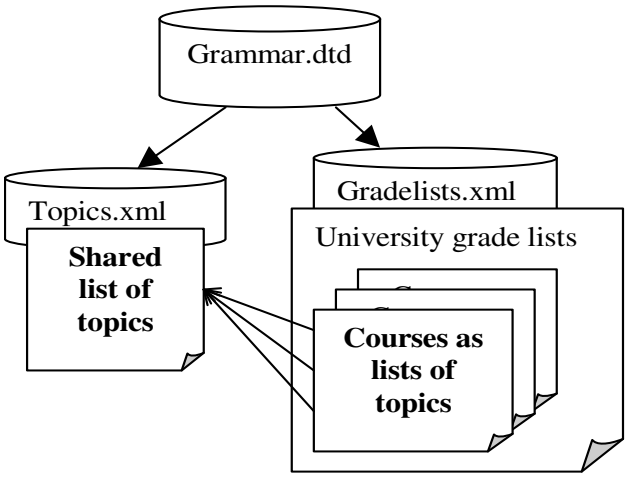


Figure 5.3. The files

The architecture of the system is presented in Figure 5.4.

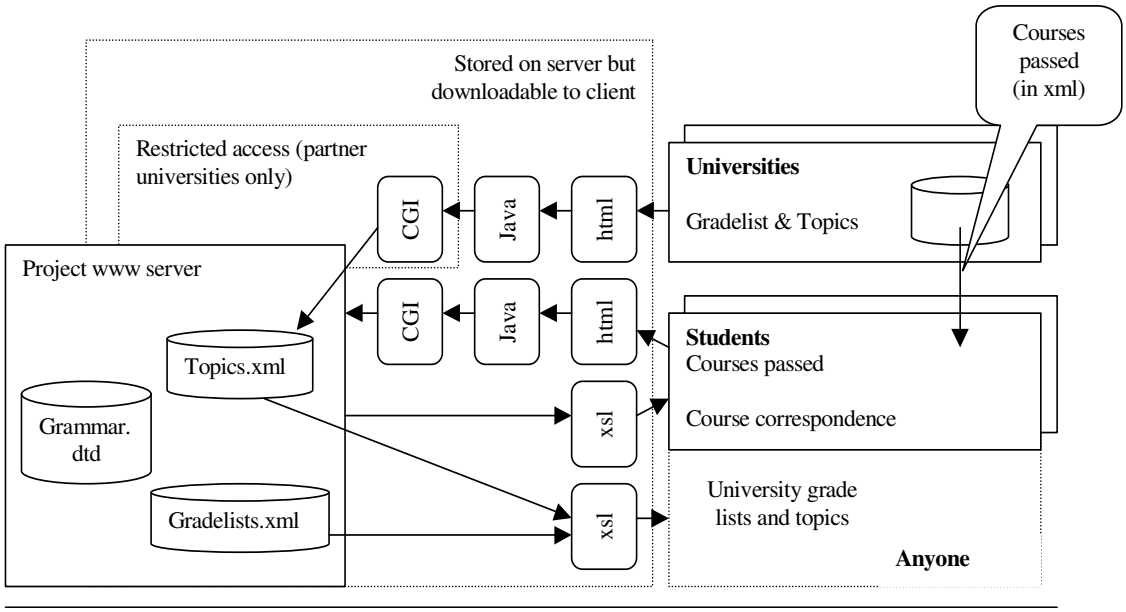


Figure 5.4. The architecture

5.4 The Data Structures

The structure of the files used in the system are defined by the DTD (Document type definition), that is presented in Application A. Basic ideas of the data structure used are presented in

Figure 5.5. The data include both normative information (Grade requirements) and less informative information (course offering and course recognition and correspondence).

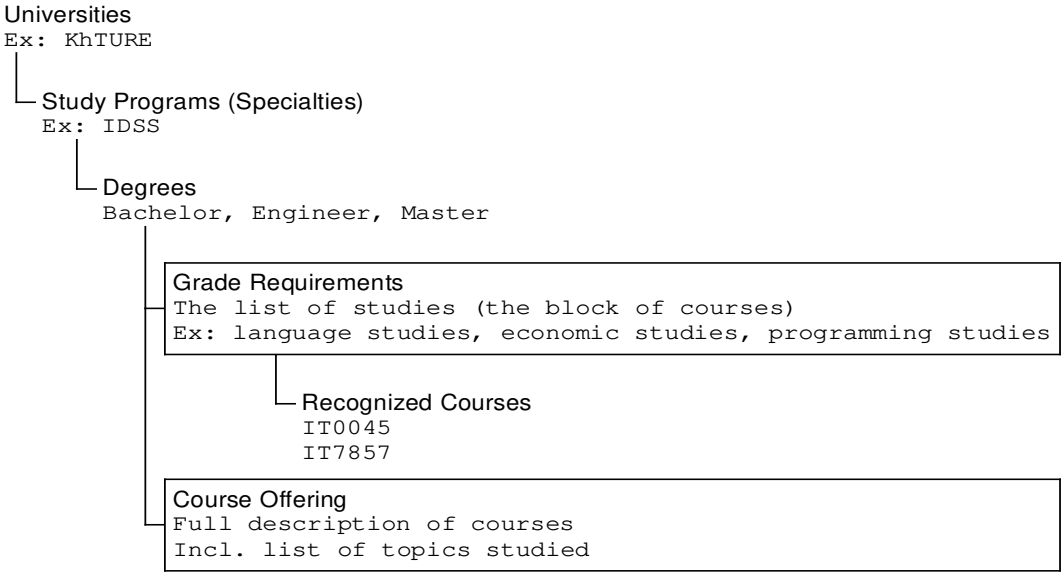


Figure 5.5. The basic data schema

The examples of basic files are given in **Figure 5.6 – Figure 5.8**.

```
<Institution>
<Nickname>KhTURE</Nickname>
<GradeScheme>
        <Specialty>ISOI</Specialty>        …
        <Degree>
            <Title>Bachelor</Title>        …
                <Studies>
                    <Title>Software Engineering</Title>
                    <Credits>61</Credits>
                    <CompulsoryCourses>
                        <CourseID>
                            <InternalID>SE25</InternalID>
                            <UniversalID>DB0001</UniversalID>
                        </CourseID>
                    </CompulsoryCourses>
                    <OptionalCourses/>
                </Studies>
…
```

Figure 5.6. Degree requirements of KhTURE

```
<TheCourse>
    <Container>
        <ID>SE 25</ID>
        <Title>Operational Systems and Data Communications</Title>
        <Author/>
        <Organisation>KhTURE</Organisation>
        <Description>The course presents...</Description>
    </Container>
    <UniversalID>DB001</UniversalID>
    <Level>undergraduate</Level>
    <Credits>4</Credits>
    <GradeType>
        <Exam/>
    </GradeType>
</TheCourse>
```

Figure 5.7. Course Offering of KhTURE

```
<Institution>
<Nickname>UJ</Nickname>
<GradeScheme>
    <Specialty>IT in Economics </Specialty> …
        <Degree>
            <Title>Bachelor</Title>
            <Credits>180</Credits>
            <Studies>       …
                    <Title>Major subject</Title>
                    <CompulsoryCourses>
                        <CourseID>
                            <InternalID>TJTC10</InternalID>
                            <UniversalID> DB0001</UniversalID>
                        </CourseID>
```

Figure 5.8. Degree requirements of UJ

5.5 Course Recognition

The system aids the human user to define course correspondence between the universities on four levels. The Four Levels of course recognition are:

1. Degree recognition. *For example, University 1 can accept the Bachelor degree assigned by University 2. On this level the system provides only consulting features for human-assisted course recognition.*
2. Studies recognition. *For example, University 1 can accept can accept Programming studies or Language studies that are offered by University 2. On this level the system also provides only consulting features for human-assisted course recognition.*
3. Course recognition. *The universities define the mapping 'local course' → 'standard course' and if two courses are defined by the universities as equivalent to the same standard course then they are recognized. On this level the system analyses course correspondence automatically (assuming that humans provided initial correspondence of the courses held in the universities to standard courses).*
4. Topic recognition. *This level contains automatic generation of course correspondence report based on the topics studied in the courses. The two courses that consist of the equivalent list of topics studied are considered as equivalent. On this level the system also assumes that humans*

defined the correspondence between the particular topics and the standard topics studied in computer science.

For example course recognition on Level 3, given the information from Figure 5.6 – Figure 5.8 will be as follows. The system will understand that the studies 'Software engineering' and 'Major Studies' differ in name and amount of credits, but the courses **SE25** can be recognized as **TJTC10** because both are equivalent to the same **DB0001** 'standard' course.

Conclusions

The developed data structures allow efficient representation of grade requirements and course offering. The next steps to be taken are:

- implementation of the test web-site with 2-3 study programs;
- verification;
- practical usage on a small group of students;
- finalizing the web-site;

promotion of the course recognition system.

Application A

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XML Spy v3.0 (http://www.xmlspy.com) by Boris Omelaenko (Home) -->
<!-- The web system for credit transfer and course recognition, for Tempus Tacis Project UM-CP-20560 -->
<!-- The structure of the documents used in the system -->
<!-- Developed by  Borys Omelayenko (Vrije Universiteit); www.cs.vu.nl/~borys; borys@cs.vu.nl -->
<!-- This file is a structure for supplements.xml (the list of grading rules and course offering uploaded by the universiites); topics.xml (the list of topics studied in Computer Science); courses.xml (the index of course offerings and descriptions); and for the files with the coursed passed by a student, he receives these files from the administrative staff of participating institutions -->
<!--The file has a Container and might be either a Topic list or a Supplement (course and grade list)-->
<!ELEMENT Root (Container, (TopicList | Supplement*))>
<!--The file can contain only the supplements of one type: either Person or Institution. It is prohibited to create files that mix two types of supplements-->
<!--The Topic list might contain one or more topics-->
<!ELEMENT TopicList (Topic)*>
<!ELEMENT Topic (Container, Hours, References*, RequiredTopicID*)>
<!--Container includes slightly extended Dublin Core Metadata set of attributes-->
<!ELEMENT Container (ID, Title, Author, Organisation, Address?, Description, Date?, URL?, Language?, Format?, Area?, Keyword*)>
<!--Literature references may be used within topic or course descritions-->
<!ELEMENT References (Authors, Title, Year, URL)>
<!--Diploma supplement, for the university contains grading scheme and course offering for a particular program; for a student contains a list of courses passed (to be issued to the student in XML by the faculty)-->
<!--Most informative are the Holder attribute (contains grading scheme) and the CourseList attribute (contains course offfering)-->
<!ELEMENT Supplement (Container, Holder, CourseList, Certification)>
<!ELEMENT Holder (Institution | Person)>
<!ELEMENT Person (FamilyName, GivenNames, Birth, StudentId, Institution, LanguageOfInstruction)>
<!ELEMENT Institution (Nickname, Description, GradeScheme, URL)>
<!--The grading requirements of the university; contains a list of grades assigned and the grade structures-->
<!ELEMENT GradeScheme (Specialty, Title, Description, Degrees, ModeOfStudy, NormalProgramLength, ProgramRequirements, FinalDegree)>
<!ELEMENT Degrees (Degree)*>
<!ELEMENT Degree (Title, Description, Credits, Studies+)>
<!-- Fields/studies, number of credits requred, and the list of compulsory courses and recognised optional courses-->
<!ELEMENT Studies (Title, Description, Credits, CompulsoryCourses?, OptionalCourses?)>
<!ELEMENT CompulsoryCourses (CourseID*)>
<!ELEMENT OptionalCourses (CourseID*)>
<!ELEMENT Certification (Date, Signature+, Stamp)>
<!--Course offering by a program (department)-->
<!ELEMENT CourseList (Container?, Course)*>
<!ELEMENT Course (TheCourse, Credits, Grade)>
<!--Course and Topic IDs here stand for Universal IDs-->
<!ELEMENT TheCourse (Container, UniversalID, Level, Credits, GradeType, Hours?, Specialty?, TopicsID*, RequiredCourseID*, ReplacementCourseID*)>
<!ELEMENT CourseID (InternalID, UniversalID)>
```

```
<!---->
<!ELEMENT Birth (Date, BirthPlace, BirthCountry)>
<!ELEMENT Date (Day, Month, Year)>
<!--The Holder-->
<!ELEMENT FamilyName (#PCDATA)>
<!ELEMENT GivenNames (#PCDATA)>
<!ELEMENT StudentId (#PCDATA)>
<!--Birth-->
<!ELEMENT BirthPlace (#PCDATA)>
<!ELEMENT BirthCountry (#PCDATA)>
<!ELEMENT Day (#PCDATA)>
<!ELEMENT Month (#PCDATA)>
<!ELEMENT Year (#PCDATA)>
<!ELEMENT LanguageOfInstruction (#PCDATA)>
<!--Contents and Results Gained-->
<!ELEMENT ModeOfStudy (#PCDATA)>
<!ELEMENT NormalProgramLength (Years, HoursPerYearMin, HoursPerYearMax)>
<!ELEMENT Years (#PCDATA)>
<!ELEMENT HoursPerYearMin (#PCDATA)>
<!ELEMENT HoursPerYearMax (#PCDATA)>
<!ELEMENT ProgramRequirements (#PCDATA)>
<!---->
<!ELEMENT Signature (Name, Position)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Position (#PCDATA)>
<!ELEMENT Stamp (#PCDATA)>
<!--Consortium members: do not create your own topic lists, add your topics into shared project database!-->
<!--Course, includes list of topics. Each university has its own list of courses-->
<!ELEMENT TopicsID (#PCDATA)>
<!ELEMENT RequiredCourseID (#PCDATA)>
<!ELEMENT Specialty (#PCDATA)>
<!--Container-->
<!ELEMENT Description (#PCDATA)>
<!ELEMENT Organisation (#PCDATA)>
<!ELEMENT Author (#PCDATA)>
<!--Course and Topic descriptions-->
<!ELEMENT ID (#PCDATA)>
<!ELEMENT Title (#PCDATA)>
<!ELEMENT Level (#PCDATA)>
<!ELEMENT Credits (#PCDATA)>
<!ELEMENT GradeType (No | Test | Exam)>
<!ELEMENT URL (#PCDATA)>
<!ELEMENT Hours (#PCDATA)>
<!--Grade types-->
<!ELEMENT No EMPTY>
<!ELEMENT Test EMPTY>
<!ELEMENT Exam EMPTY>
<!--List of courses student passed: course ID, Date, Grade-->
<!ELEMENT Grade (#PCDATA)>
<!ELEMENT Format (#PCDATA)>
<!ELEMENT Language (#PCDATA)>
<!ELEMENT Address (#PCDATA)>
<!ELEMENT ReplacementCourseID (#PCDATA)>
<!ELEMENT Area (#PCDATA)>
<!ELEMENT Keyword (#PCDATA)>
<!ELEMENT Authors (#PCDATA)>
<!ELEMENT RequiredTopicID (#PCDATA)>
<!ELEMENT FinalDegree (#PCDATA)>
<!ELEMENT UniversalID (#PCDATA)>
<!ELEMENT InternalID (#PCDATA)>
<!ELEMENT Nickname (#PCDATA)>
```

Appendix 1.

EUROPEAN CREDIT TRANSFER SYSTEM ECTS

USERS' GUIDE

31.03.1998

European Commission

CONTENTS

INTRODUCTION

MAIN CHARACTERISTICS OF ECTS

GENERAL CONDITIONS FOR THE USE OF ECTS

ECTS CREDITS

ECTS COORDINATORS

THE INFORMATION PACKAGE

THE STUDENT APPLICATION FORM/LEARNING AGREEMENT

THE TRANSCRIPT OF RECORDS

THE ECTS GRADING SCALE

THE DIRECTORY OF ECTS USERS AND THEIR DIRECT PARTNERS

CONTACTS FOR FURTHER ADVICE

ANNEXES:ECTS Brochure

ECTS Forms

Specimen Introduction for Information Package

INTRODUCTION

The European Community promotes interuniversity cooperation as a means of improving the quality of education for the benefit of students and higher education institutions, and student mobility is a predominant element of that interuniversity cooperation. The Erasmus programme clearly demonstrates that studying abroad can be a particularly valuable experience as it is not only the best way to learn about other countries, ideas, languages and cultures; increasingly it is also an important element in academic and professional career development.

The recognition of studies and diplomas is a prerequisite for the creation of an Open European area of education and training where students and teachers can move without obstacles. That is why the European Credit Transfer System (ECTS) was developed in a pilot scheme established within the Erasmus programme as a means of improving academic recognition for study abroad. The external evaluation of ECTS has demonstrated the potential of the system and the European Commission has decided to include ECTS in its proposal for the Socrates programme, in particular in Chapter I on higher education (Erasmus). ECTS is now moving from its restricted pilot stage towards a much wider use as an element of the European dimension in higher education.

ECTS provides an instrument to create transparency, to build bridges between institutions and to widen the choices available to students. The system makes it easier for institutions to recognize the learning achievements of students through the use of commonly understood measurements - credits and grades - and it also provides a means to interpret national systems of higher education. ECTS is based on three core elements: information (on study programs and student achievement), mutual agreement (between the partner institutions and the student) and the use of ECTS credits (to indicate student workload).

This Guide has been designed to help potential users of the European Credit Transfer System (ECTS) to implement the system in practice. The principal elements of ECTS are presented briefly as they have been developed, thoroughly tested and refined in the pilot scheme by 145 European universities from all Member States and EEA countries.

MAIN CHARACTERISTICS OF ECTS

As stated in the introduction, ECTS system is based on three core elements: information (on study programs and student achievement), mutual agreement (between the partner institutions and the student) and the use of ECTS credits (to indicate student workload). These three core elements are made operational using three key documents: the information package, the application form/learning agreement and the transcript of records. Most of all, ECTS is made operational by students, teachers and institutions who want to make study abroad an integral part of the educational experience.

In itself, ECTS in no way regulates the content, structure or equivalence of study programs. These are issues of quality, which have to be determined by the higher education institutions themselves when establishing a satisfactory basis for cooperation agreements, bilaterally or multilaterally. The code of good practice called ECTS provides those actors with tools to create transparency and to facilitate academic recognition.

Full academic recognition is a *conditio sine qua non* for student mobility in the framework of the Socrates/Erasmus programs. Full academic recognition means that the study period abroad (including examinations or other forms of assessment) replaces a comparable period of study at the home university (including examinations or other forms of assessment), though the content of the agreed study program may differ.

The use of ECTS is voluntary and is based on mutual trust and confidence in the academic performance of partner institutions. Each institution selects its own partners.

ECTS provides transparency through the following means:

1. ECTS credits which are a numerical value allocated to course units to describe the student workload required to complete them (see the section on “ECTS credits”);

1. The information package which supplies written information to students and staff on institutions, departments/faculties, the organization and structure of studies and course units (see the section on “Information package”);

2. The transcript of records which shows students’ learning achievements in a way which is comprehensive, commonly understood and easily transferable from one institution to another (see the section on “Transcript of records”);

3. The learning agreement covering the program of study to be taken and the ECTS credits to be awarded for their satisfactory completion, committing both home and host institutions, as well as the student (see the section on “Student application form/Learning agreement”).

Good communication and flexibility are also needed to facilitate the academic recognition of studies completed or taken abroad. In this respect the ECTS coordinators have an important role to play as their main tasks are to deal with the academic and administrative aspects of ECTS (see the section on “ECTS coordinators”).

The full range of course units of the department/faculty/institution using ECTS should be made available to the mobile student, including taught doctorate course units. Students should be enabled to follow regular course units - and not courses specifically designed for them - and should not be precluded from the possibility of fulfilling the host institution’s requirements for a degree or diploma.

ECTS also enables further studies abroad. With ECTS, a student will not necessarily go back to the home institution after the study period abroad; he/she may prefer to stay at the host institution - possibly to gain a degree - or even move to a third institution. The institutions themselves decide whether this is acceptable and what conditions the student must fulfil to obtain a diploma or transfer registration. The transcript of records is particularly useful in this context as it provides a history of the students’ academic achievements, which will help institutions to make these decisions.

GENERAL CONDITIONS FOR ON THE USE OF ECTS

INSTITUTIONAL COMMITMENT

ECTS can only succeed when there is voluntary participation, transparency, flexibility and a climate of mutual trust and confidence. Staff needs to be informed and trained to apply the principles and mechanisms of ECTS.

More specifically the following is required:

- The appointment of an ECTS institutional coordinator;
- The appointment of ECTS departmental coordinators by subject area/discipline in all departments/faculties intending to use ECTS;
- The allocation of ECTS credits to course units;
- The production of an Information package in all subject areas/disciplines in which ECTS will be/is used, in the native language and in another EU language;
- The use of student application forms transcripts of records and ECTS learning agreements.

RESOLVING PROBLEMS

Committed institutions will find that the transparency and the discipline of ECTS makes academic recognition a relatively simple process, in which decisions can be reached openly based on good information. However, there are always decisions to make which may be crucial to the future of the students concerned - academic decisions or decisions on simple practical matters. It is a basic principle of ECTS that such decisions be made in accordance with the principle of "treating the visiting ECTS student as a normal student of the institution".

ECTS CREDITS

WHAT ARE ECTS CREDITS?

ECTS credits are a numerical value (between 1 and 60) allocated to course units to describe the student workload required to complete them. They reflect the quantity of work each course unit requires in relation to the total quantity of work necessary to complete a full year of academic study at the institution, that is, lectures, practical work, seminars, tutorials, fieldwork, private study - in the library or at home - and examinations or other assessment activities. ECTS is thus based on a full student workload and not limited to contact hours only.

ECTS credits are a relative rather than an absolute measure of student workload. They only specify how much of a year's workload a course unit represents at the institution or department allocating the credits.

In ECTS, 60 credits represent the workload of an academic year of study and normally 30 credits for a semester and 20 credits for a term.

ECTS credits ensure that the program will be reasonable in terms of workload for the period of study abroad.

Two examples:

1. a student whose choice of course units results in a program of study totaling 120 ECTS credits for an academic year would have to work twice as much as an average local student at the receiving institution; and

1. A student whose program of study totals 30 ECTS credits for a whole academic year would be undertaking much less work than the average local student and would in effect be studying part-time.

ECTS CREDIT ALLOCATION

How to allocate ECTS credits to course units?

ECTS credits should be allocated on a “top-down” basis. The starting point should be the full program structure and the normal pattern of courses a student would have to take in an academic year to complete the qualification in the official length of study. Allocating credits to individual course units on a “bottom-up” basis is very complicated and may result in a total of more than 60 credits for a year, thus making credit transfer very difficult.

The use of decimals in credit ratings (e.g. 1.82 credits) should be avoided or at least limited to the use of half credits. While it may be mathematically correct it can create problems as most institutions are unlikely to find it necessary to allocate credits with such precision.

The process of ECTS credit allocation invites institutions to describe their curricular structures in a common currency but does not require any changes to those structures. In certain circumstances ECTS credit allocation can be a simple mathematical or mechanistic activity, in others it may initially involve considerable negotiation within a faculty/department or institution.

In modular programs where all units are equally weighted, or where there is a credit system based on student workload, all that is required is to apply a conversion factor. For example, the Norwegian degree system is modular and credit based with 20 credits for an academic year. To convert Norwegian credits to ECTS credits simply means multiplying the Norwegian credit value by a factor of 3 to obtain the equivalent ECTS credit value.

For other credit systems based exclusively on class contact hours the use of a conversion factor may still be appropriate provided the other workload elements mentioned above are accounted for.

Sometimes there is an uneven distribution of workload between the semesters within an academic year but this should not constitute a major problem if the academic year total 60 credits. Should it be the case, a note about it in the Information Package will avoid surprises to students who are constructing a program of study abroad, which includes course units from different years of study.

The overall philosophy of ECTS is to allow for flexibility and this applies to the allocation of credits. It is up to the institutions to demonstrate consistency in allocating credits between similar programs of study.

To which course units should ECTS credits are allocated.

ECTS credits should be allocated to all the course units available - compulsory or elective courses. Credits should can also be allocated to project work, thesis and industrial placements where these “units” are a normal part of the degree program, including postgraduate degrees as long as the learning achievements are assessed.

Is there a relationship between ECTS credits and the level or difficulty of a course unit?

There is no relationship between the two. The level of a course unit cannot be specified in ECTS credits. In ECTS the level of a course unit is described by the offering institution in the Information Package. There you will find the aims and objectives of the course, the pre-requisite knowledge required, teaching and learning methods used, the mode of assessment and the description of the course content. These elements are supplemented where necessary by personal contacts between academics. All of this helps the student and coordinator at the sending institution to assess the suitability of a particular course unit for transfer and the level at which it will be recognized in the program at the home institution. It is entirely up to the academics to evaluate the workload, and so to allocate the credits. It is entirely up to the academics to evaluate the workload, and so allocate the credit

Conclusion:

A more advanced or higher level course must not carry more ECTS credits than a less advanced course, just because of its level.

Is there a relationship between ECTS credits and contact hours?

In the simplest case, yes there is, but remember that ECTS credits are not based on the contact hours themselves, but on the total workload, which the contact hours generate. When a year of a course in an institution consists entirely of traditional lectures, tutorials and examinations, it is quite likely that the contact hours are directly related to the student workload, and so to the ECTS credits for each course unit. The exact nature of the relationship may change as the course progresses; this

will be evident if successive years of a course have different totals of contact hours, though each year should total 60 ECTS credits. Neighboring institutions teaching students of differing abilities may choose different teaching strategies, for example, one institution may teach a 5-credit course unit as 24 lecture hours, 6 tutorial hours and 60 hours of private study before revision and examination, whereas the other institution may teach the same 5-credit course unit in 24 lecture hours, 36 tutorial hours and 30 hours of private study. Both institutions in this example achieve comparable outcomes with the same total workload, and allocate the same number of ECTS credits even though the contact hours are very different.

It is more complex when a course includes large blocks of contact time devoted to supervised laboratory work or design classes. It is clear that one of these contact hours does not involve the same total work as a traditional lecture hour, and would be converted wrongly into ECTS credits if it were treated as the same. A laboratory hour would be valued at between a quarter and half of a lecture hour, depending on institutional practice. When project work is largely unsupervised, it is easiest to consider what proportion of the year would be needed to complete the project on a full-time basis, i.e. to think in “weeks” rather than “hours”.

What about credits for course units offered within more than one degree programme?

Sometimes the same course unit is available to students following different degree programmes but the total workload calculation suggests is allocated ddifferent credit ratings depending on the degree programme. Departments new to credit allocation could agree different credit ratings as an interim solution, but in the long term institutions are likely to prefer (or indeed insist upon) one credit rating for one course unit.

For example:

The same course unit sociology has a different credit rating in the economics and the law degree programme because of the relative workload of this course unit in both programmes. These kinds of differences are sometimes unavoidable and it is up to the institution to provide the necessary consistency in allocating the credits and in deciding which is the more appropriate rating for the incoming student. Advice should be sought from the coordinator if there is a problem.

What about optional or elective course units?

As stated before, optional or elective units must be allocated credits along the same lines as for a core or compulsory course unit, that is, on the basis of the proportion of workload it represents in relation to the overall workload of a year’s study. What is an optional or elective course unit in one institution may well be a core or compulsory course unit in another. In some institutions optional or elective units are not included in the regular study programme but can be taken in addition to it. ECTS credits in that case should be allocated to optional units according to the workload they would represent if they were included in the programme.

What to do when the official length of study is less than the average time taken by students to complete it?

In some higher education systems the average length of time taken by students to complete their studies is more than the official length of the study period. ECTS credits should always be allocated on the official length or duration of a degree not on the average length of time it might take local students to complete the degree.

This may create problems for visiting students as their 60 credit programme of study may be perceived by them as requiring them to undertake substantially more work than the average local student.

Also in some institutions, students are allowed to split their examinations between different examination periods or even postpone them until they feel they can take them with the greatest success. Visiting students do not usually have this flexibility as they need to achieve results in order to start classes at the beginning of the academic year at the home institution. Where either of these situations might place visiting students at an academic disadvantage in comparison with local students and make it difficult to obtain 60 credits, the position should be clearly explained in the information package so that the student and coordinators can construct a programme which is realistic in terms of workload but will not disadvantage the mobile student in the examinations.

THE AWARD OF ECTS CREDITS TO STUDENTS

What is the difference between credit allocation to course units and the award of credits to students?

ECTS credits are allocated to course units but are only awarded to students who successfully complete the course by satisfying the assessment requirements. In other words students do not get ECTS credits simply for attending classes or spending time abroad - they must satisfy the assessment regulations specified at the host institution to demonstrate that they fulfilled the stated learning objectives for the course unit. The assessment procedure may take various forms: written or oral examinations, coursework, a combination of the two or other means such as presentations at seminars, information on which should be included in the Information package .

What to do if the visiting student is not able to sit the regular examination?

Some degree programs consist of integrated teaching modules spread over more than one academic year for which students have to complete all elements before they are allowed to take the examination at the end of the course. Such a system may create problems for visiting students who spend either a semester or a year at the host institution. They will only be able to take part of the course unit and will not be able to be assessed on it nor to receive ECTS credits from the host institution, as they have not completed the course.

Practical solution:

Institutions in this position if they wish to use ECTS may choose to adapt their degree programmes to make them more accessible to the incoming student. If they retain the status quo, some flexibility is recommended on their part in allocating ECTS credits to the different parts of the course unit and organising intermediate assessment procedures for visiting students.

What to do if the home examination cannot be replaced?

As stated before, full academic recognition implies not only that the period of study abroad replaces a comparable period of study at home but also that the foreign examination (or other form of assessment) replaces the home examination. The experience of Erasmus and ECTS shows that most institutions are able to guarantee their students full academic recognition. Sometimes, the home examination covers a broader range of subjects and cannot be replaced formally (intermediate and final examinations). In those cases, the home institution must give a guarantee to the student that the foreign examination will be taken into account in the fullest possible way, e.g. by giving partial exemptions of the home examination.

What about the assessment of project works, theses and industrial placements?

As for all course units, learning outcomes and assessment methods should be described in the information package. Either the rules of the host institution will be prevailing, or joint assessment by home and host institutions (and industry) can be considered in these cases.

Credits are not awarded for good marks - the amount of credit for a course is fixed and is the same for all students who succeed in the assessments. The quality of the student's performance on the programme of study is given by grades (See the section on the ECTS grading scale).

ECTS CREDIT TRANSFER

How are ECTS credits transferred?

Home and host institutions prepare and exchange transcripts of records (see the section on Transcripts of records) for each student participating in ECTS before and after the period of study abroad. A copyies of these transcripts are given to the student for his/her personal file. The home institution recognises the amount of credits received by their students from partner institutions abroad in respect of specific course units such so that the credits for the course unit passed replace the credits which would otherwise have been obtained from the home institution. Thus full academic recognition is given. The Learning Agreement gives the student a guarantee in advance that the credits for the approved programme of study will be transferred (see the section on "ECTS Application Form/Learning Agreement").

Two good models of credit transfer are in common use.

Some home institutions have a year-by-year or semester-by-semester course pattern. Here, the learning agreement between the institutions and the student will show a block of course units chosen to replace the year or the semester at the home institution. The successful student, on return, will receive a block of credits, which may be shown as such on the student record rather than a list of individual course units. Thus full academic recognition is given.

Other home institutions define their qualification in terms of a list of course units to be taken and passed over a number of years. These learning agreements will list course units or groups of course units which correspond to the home course units against which academic recognition will be given. The home course units might indeed be written on the learning agreement alongside the host course units. On return, the successful student is awarded credit in respect of the home institution's course units. The total number of credits recognized in this way should match the total number awarded by the host. Thus full academic recognition is given.

This second model is the more difficult to use, but unit-by-unit transfer is needed for some national systems and for the specific requirements of some professions. Where the home course includes elective material as a curriculum requirement, credit transfer in respect of these components may be particularly simple. Indeed, institutions can use student mobility with ECTS to extend the range of options available to their students.

PARTIAL FAILURE

The award of credit is the responsibility of the host institution, and students sometimes return home with fewer credits than they had hoped. If the host institution offers their own students a second attempt at an assessment, the mobile student should take advantage of this procedure. When the host's procedures are at an end, the matter of the students' progress rests with the home institution, in accordance with its rules.

In the event of serious failure, the student may need to repeat the period of study at the home institution, lengthening the student's course. Credit should be transferred for any course units in which the student has succeeded. In the event of partial failure, the home institution may permit the student to take its own assessments, and may then award its own credit. Institutional rules are very diverse in this respect.

ECTS COORDINATORS

Institutions using ECTS will appoint an ECTS institutional coordinator and one ECTS departmental coordinator for every participating department or faculty. Their role will be to deal with the administrative and academic aspects of ECTS and to advise students.

This section describes in general terms the role that ECTS coordinators play in the implementation process of ECTS, though the precise division of responsibility between institutional and departmental coordinators may vary from institution to institution. It is up to the institution to decide on the division of tasks between ECTS coordinators and other colleagues dealing with international relations.

The ECTS institutional coordinator

The essential role of the institutional coordinator is to ensure the commitment of the institution to ECTS principles and mechanisms.

His/her general duties will be to promote ECTS both within the institution and outside, eg. within international cooperation programmes, to facilitate the practical implementation of ECTS and to provide support to departmental coordinators. Especially in large institutions, it is important that the institutional coordinator be a person sufficiently senior to have strong links with both the academic and the administrative structures of the institution.

His/her more specific tasks will be to inform students about ECTS and coordinate the preparation, production and distribution to partners of the information package(s) with the departmental coordinator(s). The institutional coordinator will also be responsible for contractual arrangements with the European Commission and with the National Grant-Awarding Authority.

The ECTS departmental coordinator

The departmental coordinator will usually be the contact person of students and academic staff within the department or faculty and deal with most practical and academic aspects of the implementation of ECTS.

He/she will inform students about ECTS in more practical details, eg. provide students with the information packages available from partner institutions, help students to fill in the student application form, explain the academic recognition procedures and documents (learning agreement, transcript of records) etc. The departmental coordinator will guide the student to devise a programme of studies combining academic requirements with individual interests.

Communication between home and host institutions is normally conducted by departmental coordinators who will exchange application forms and signed copies, discuss programmes of studies, prepare transcripts of records for outgoing students before their study period abroad as well as for returning students at the end of their study period in the institution.

Departmental coordinators will inform their colleagues about ECTS and its implications in terms of allocation of credits to all courses of the department/faculty. He/she will prepare the part of the information package, which deals with their department/faculty.

Both coordinators will ensure smooth integration of incoming students within their institution. They will also ensure that their outgoing students are making progress at the host institution by being in regular contact with them.

THE INFORMATION PACKAGE

Each institution using ECTS produces information packages as guides for potential partners and students and staff at partner institutions, to its courses, curricula, academic and administrative arrangements. Information packages are intended to facilitate curriculum transparency, to help teachers guide students to choose appropriate programmes and plan their studies abroad, and to provide practical information.

The information packages may be the first contact a student or coordinator has with another institution so they should be concise documents setting out what the institution is offering in such a way that students, guided by their teachers, can make a realistic assessment of which study abroad option suits them best. Complementary information can be provided at a later stage, once the application to a host institution has been accepted.

Information packages should be systematically updated each year and should be readily accessible to users, students and teaching staff, either in hard copy or on diskette. Electronic networking among partner institutions has proved an effective means of disseminating information packages. It is recommended that each institution should produce its information in the native language and at least one other EU language and distribute them to their partners in due time in order to allow students and their teachers to make their choices and to organise the programme of study abroad.

With the increase in participation in ECTS, there is a move towards the presentation of ECTS information packages on the Internet. This is an entirely logical move, but Internet packages can only really replace paper copies when staff and students of partner institutions all have Internet access on a regular basis. The following information package structure lends itself well to Internet. It is obvious that an ECTS information package, whether on paper or on Internet, must present curricula and course units expressed in ECTS credits and must avoid any possibility of confusing institutional or national credit systems with ECTS.

The following notes attempt to address most of the questions to which prospective ECTS users will want answers in the information packages. It will be clear that some elements are crucial for implementing ECTS notably:

- good course unit descriptions;

- details of examination systems and grading schemes;

- credits.

Other elements are very useful in practice and a checklist of contents of information packages is offered below together with some examples of good practice. It is up to institutions to organise their information packages; however, the following structure is recommended as one which has been tested and proven to be effective by institutions using ECTS.

CHECKLIST OF ELEMENTS TO INCLUDE IN AN INFORMATION PACKAGE

TABLE OF CONTENTS

INTRODUCTION - WHAT IS ECTS?

I - THE INSTITUTION

A. Name and address

B. Academic calendar

C. The institutional coordinator

D. General description of the institution

E. Registration procedures

II - GENERAL PRACTICAL INFORMATION

A. Host country formalities

B. Getting there

C. Cost of living

D. Accommodation

E. Health and insurance

1. Medical facilities
2. Special needs students
3. Insurance cover

F. Study facilities at the host institution

1. Libraries
2. Specialist facilities

G. Other practical information

H. Extra-mural and leisure activities

III - THE DEPARTMENT

A - General description

Information on the department and characteristics general to all courses.

B - Degree structure

1. Qualifications
2. Course structure diagram

C - Individual Course Units

1. Identification

2. Description

3. Level

4. Mandatory or optional course units

5. Teaching staff

6. Length and period (1st semester, 2nd semester etc.)

7. Teaching and learning methods

8. Assessment

9. The language

10. ECTS credit allocation

IV - GLOSSARY

V- EXAMPLES OF GOOD PRACTICE

IV - GLOSSARY

V - EXAMPLES

INDICATION OF CONTENT

INTRODUCTION - WHAT IS ECTS?

The introduction gives a brief description of ECTS, largely for the benefit of students reading the information package. A specimen introduction (based on the opening pages of this Users' Guide) is shown in the appendix.

I - THE INSTITUTION

A - Name and address

Complete name and address, including telephone and telefax numbers (with country and region or city dialling codes) and e-mail box. A map of the town or city centre, or university campus, may give a good general idea of where the institution and its different premises are situated.

B - Academic calendar

Dates of the academic year, course programme (year, semesters, terms), main examination periods and holidays.

C - The ECTS institutional coordinator

Comprehensive contact information, including the full name, address, telephone and telefax numbers, and e-mail box for both the coordinator and those who take over when s/he is not available. Times at which the coordinator is most likely to be available in person should be indicated.

D - General description of the institution

Brief history of the institution followed by a description of its size (enrolments, staff strength), status (public or private, university or non-university), organisation and structure.

E - Registration procedures

Information under this heading is essential in determining the feasibility of a study abroad programme. It should include the following where applicable:

1. Application deadline;

1. Dates and deadlines for registration and documents to be completed and submitted and the deadlines for them;

2. Details regarding any preparatory programme or induction course, where applicable;

3. Linguistic requirements, including the level of proficiency advised or required, any mandatory certificate of ability, and language preparation courses or proficiency tests, etc.;

4. Information as to any financial outlay required from students.

II - GENERAL PRACTICAL INFORMATION

A - Host country formalities

Details of what is expected of any adult visitor to the country of the host institution. Students should be clearly aware of the formalities involved in obtaining residence or work permits (where necessary) and registering with the appropriate national, regional or local authorities.

The information package might also provide a check-list of key practical matters a student should think about before departure abroad.

B - Getting there

Besides giving the official postal address, telephone and telefax numbers and e-mail box of the institution, students should know exactly where, when and to whom they have to report on arrival.

C - Cost of living

An indication of the average cost of living in the place of study abroad should be given. Where possible, it should include examples of likely expenditure levels for key items to be considered in the budget of students abroad for several months and any special facilities available to students (restaurants, cafeteria, etc.).

D - Accommodation

The present section should provide full details on the contact persons, points and hours within the host higher education institution or elsewhere, where foreign students can obtain advice and help in finding suitable accommodation.

The formalities students may have to complete to secure it should be clearly itemized. Deadlines and rules for registration should be stated. Where applicable, the availability of accommodation for students with special needs, including the handicapped, or those accompanied by partners or children should be indicated. Students should be informed of the comparative costs of different types of accommodation, and associated expenditure and formalities.

E - Health and insurance

1. Medical facilities

Prospective students should receive information about the conditions under which they may benefit from medical facilities and hospital services.

2. Special needs students

Complete name and address, telephone and telefax numbers, and e-mail box of the service which students with special needs should contact.

3. Insurance cover

Students should be informed as to how they may obtain insurance cover under the social security system of the host country, and about alternatives which may be available to cover health and other risks where state provision appears inadequate.

F - Study facilities at the host institution

1. Libraries

Information on the scale, scope and location of library provision and associated facilities at the institution should be given in this section, as should all charges relating to their use. Opening hours and periods and conditions for the loan of books etc. should be especially clearly stated.

2. Specialist facilities

Facilities, e.g. laboratories, computer facilities, hospital premises for medical students, etc. will be described in the departmental section.

G - Other practical information

Practical information on banks, public transport etc.

H - Extra-mural and leisure activities

A brief reference to student union or other student associations (contact points, formalities and conditions of membership) and sport and cultural activities available to students may be included under this heading. Supplementary information on leisure activities can be provided separately.

III - THE DEPARTMENT

A - General description of the department

1. The ECTS departmental coordinator: Comprehensive contact information, including the full name, address (including P.O. box where applicable), telephone and telefax numbers, and e-mail box for both the coordinator and those who take over when s/he is not available. Times at which the coordinator is most likely to be available in person should be indicated.

1. Brief description of the structure and organisation of the department, including the number of staff and students, and an indication of the main research interests.

2. Brief description of the specialist facilities (library, laboratory, workshop or other premises and equipment, etc.).

3. List of the degree programmes offered and duration of studies.

4. A description of the principal teaching and learning methods used and on the ways in which students are assessed including, for example, written and oral examinations, the results of practical laboratory assignments or fieldwork, the satisfactory completion of placements, or the writing of a satisfactory thesis. If assessment is done differently for each course unit, details will be given under “Individual course units” below (under C).

5. The local grading scale: each higher institution uses a grading system. There are many different systems in Europe. The information should describe the system used by the institution, if necessary per course unit in order to facilitate the conversion of grades or marks to a rating on the ECTS grading scale (for further details, see the section on “The ECTS grading scale”).

B - Degree structure

This section should complement the information given immediately above to include the following:

1. Qualifications

Description and structure of the regular degree programmes offered in the department (no special course unit need to be designed for ECTS purposes only). Information on how students could fulfil the requirements for a degree/qualification.

2. Course structure diagram

It is useful to make a diagram or table of the structure of the degree programme(s), showing the number of ECTS credits allocated to each course unit. See the examples at the end of this section (see also the section on “ECTS Credits”).

C - Individual course units

In principle all course units should be included in the information package.

The department defines course units and they may be grouped into larger modules or blocks of learning within the global course structure.

In cases where the availability of course units may depend on a minimum number of students enrolling, that minimum should be clearly indicated.

Though research in itself is excluded from ECTS, students may undertake research projects essential to obtaining a degree (e.g. the U.K. Master's degree). Projects of this kind should thus be well-defined in the information package, with credits allocated and assessment procedures and methods described (see below).

The description of the individual course units is the most important part of the information package. Its preparation requires special care and should include the following:

1. Identification

The title of the course unit and its code (if any).

2. Description

A clear description of the content of each unit. While ideally concise, the presentation should be sufficiently detailed for potential partners to understand the topics and themes covered.

3. Level

Course unit level may be indicated with reference to the following:

a. Prerequisite: an indication of the prior knowledge assumed at the start of the course unit, including a guide to the books and other course learning material students might usefully consult in advance, pre-requisite courses;

b. Aims and objectives: the description of the intended learning outcomes of each course unit, in terms of its aims and objectives;

c. Bibliography: any books or other learning material, which they will be required to use as the course unit progresses.

4. Compulsory or optional course units

The information package should state whether the course unit is compulsory in that it must be successfully completed by all students seeking to obtain a given qualification/degree at that institution, or whether it is one of a range of options, only a limited number of which have to be completed.

5. Teaching staff

Full names should be given for staff involved in the delivery of a course unit.

6. Length

The total time normally required to complete the course unit should include the number of hours devoted to it each week, and the term, semester and year of the overall course in which it is normally taken, with a possible cross-reference to any diagramme under B - 2. above. Where topics from different units are studied in parallel, the percentage of time spent per day per topic should be indicated if possible.

7. Teaching and learning methods

Details will be given on the following kinds of teaching and learning methods, the hours per week and the number of weeks devoted to them:

a) lectures;

b) tutorials (conventional tutorial arrangements or special provision for individual tutoring should be specified);

c) group seminars or workshops;

d) laboratory work;

e) project or fieldwork;

f) other practical activity;

g) distance teaching methods (where applicable);

h) other methods.

8. Assessment

The nature, duration, timing and frequency of forms of assessment specific to the course unit should be carefully enumerated and described. Examination periods may have to be stated if different from the standard examination periods of the institution.

Examination procedures and formalities should be detailed, for instance deadlines for registration.

In some institutions, special arrangements are allowed for mobile students, e.g. the authorization for them to sit exams in languages other than that of the host institution, the use of dictionaries in exams, or extended time limits for the completion of exam papers, etc. Similar arrangements should be indicated.

There should be similar information about the procedures and arrangements for students wishing to re-sit exams, including also the dates (often out-of-semester/term) at which they can do so.

The following are likely to be among the common ways in which student performance is measured:

a. written or oral examinations;

b. essays;

c. dissertations - The language in which dissertations are to be given must be agreed between home and host institutions prior to the students' departure. The number of credits must be clearly established;

d. theses - The language in which theses are to be prepared and the way in which they will be assessed should be agreed between home and host institutions prior to the students' departure. Theses should normally be written in accordance with academic practice at the host institution, and any courses which may be linked to their preparation should be identified and explained in accordance with the recommendations of this Guide. The aims and expected learning outcomes should be made as explicit as possible, and the number of credits must be clearly established. Students should be made fully aware of the deadline for the completion of theses;

e. projects or practical work;

f. placements must be open to students if their completion is an integral part of the host institution qualification. Credits allocated to placements should be clearly stated and students must know how the outcomes of any placement will be measured;

g. testimonial;

h. continuous assessment.

How learning is assessed and the relative importance attached to the different stages and types of assessment should be specified as clearly as possible. For example, students should know if they will be less penalised for a poor end-of-semester exam result if they have performed well in practical work or essay writing over that semester.

9. The language

Any course units offered in languages other than the native one should be specified.

10. ECTS credit allocation

A credit rating must be allocated to all course units on the basis of 60 credits for an academic year, even where the latter are grouped into modules or larger course "blocks". A rating must also be given to substantial projects (theses, dissertations, laboratory assignments, fieldwork, etc.) within units. (For further information, see the section -- "ECTS credits").

IV - GLOSSARY

A glossary of the terminology used in the information package could be useful to avoid misunderstandings. For instance, a “seminar” may have a different meaning in different countries.

V - EXAMPLES OF GOOD PRACTICE

Examples of degree course structures are added as well as examples of individual course unit descriptions. These are models of good practice adaptable to the needs of individual institutions.

DESCRIPTION OF DEGREE COURSE STRUCTURE - EXAMPLE 1

International Business Administration

The aim of the International Business Administration programme is to prepare the student for professionnal tasks with an international orientation, in business, in public administration, or international organizations.

The programme is designed to allow for the integration of language courses with courses in Business Administration/Economics/Economic Geography. Students specialize in one of the following languages: French, German, Japanese or Spanish.

The programmes includes 6 1/2 semesters of compulsory courses, corresponding to 195 credits, while 1 1/2 semesters, or 45 credits are devoted to one of the following majors:

✓ International Marketing (Marketing Dept.)

✓ International Management (Dept. of Managerial Economics)

Control

✓ Economics (Economics Dept.)

✓ International Economic (Dept. of Economic Geography

Geography

Each major is composed of a number of courses and a 15 credit project paper, which is completed during the eighth semester.

Throughout the programme, students are required to participate in a number of study periods abroad.

A total of 135 students are admitted to the first semester each fall.

An overview diagram of the course structure is attached overleaf.

International Business Administration - Programme Overview

Year 1, Semester 1 (Fall)	
Economic Geography 7,5 credits	Intro. Financial Accounting 7,5 credits
English 15 credits	
Year 1, Semester 2 (Spring)	
Management Accounting 7,5 credits	
Economic History 4,5 credits	Statistics 10,5 credits
Language Specialization 7,5 credits	
Total Year 1 : 60 credits	

Year 2, Semester 3 (Fall)	
Principles of Microeconomics 7,5 credits	Principles of Macroeconomics 7,5 credits
Language Specialization 7,5 credits	Principles of Int. Economics 7,5 creditis
Year 2, Semester 4 (Spring)	
Commercial Law 7,5 credits	
Language Specialization 15 credits	Economic Policy 7,5 credits
Total Year 2 : 60 credits	
Year 3, Semester 5 (Fall)	
Intro. Marketing 7,5 credits	Accounting Systems 7,5 credits
Language Specialization 15 credits	Financial Accounting 7,5 credits
Year 3, Semester 6 (Spring)	
Elective7,5 credits	
Language Specialization 7,5 credits	B. Admin/Econ. 7,5 credits
Total Year 3 : 60 credits	
Year 4, Semester 7 (Fall)	
International Management 7,5 credits	Major 1 7,5 credits
Language Specialization 7,5 credits	Major 2 7,5 credits
Year 4, Semester 8 (Spring)	
Major 1 7,5 credits	
Major 2 7,5 credits	Project Paper 15 credits
Total Year 4 : 60 credits	
Total study : 240 credits	

THE STUDENT APPLICATION FORM

AND LEARNING AGREEMENT

The student application form

After having chosen a host institution, looked carefully at the host institution's information package and consulted his/her ECTS departmental coordinator, the student will fill in a student application form.

In order to fill in the form, the student must already have a precise idea on the programme of study he/she wishes to follow at the host institution, elaborated in conjunction with the home institution's ECTS departmental coordinator and with the agreement of the home institution's ECTS institutional coordinator.

The student may also wish to include a second or even third choice of host institution in the application form, should the first choice of destination not be accepted. In this case, the student, with the approval of the coordinator, will have to prepare a learning agreement for each intended destination.

The learning agreement

When the three parties involved - the student, the home institution and the host institution - agree about the study programme abroad, they sign a learning agreement attached to the application form. This agreement on the proposed programme of study abroad must be reached before the student leaves for the host institution.

The learning agreement is a document describing the programme of study abroad and its existence facilitates full academic recognition. A copy of the signed learning agreement should be given to all parties involved, the home institution, the host institution and the student.

The learning agreement

When the three parties involved - the student, the home institution and the host institution - agree about the study programme abroad, they sign a learning agreement attached to the application form. This agreement, which describes the programme of study abroad, must be signed before the student leaves for the host institution. Good practice in the use of the learning agreement is a vitally important aspect of ECTS.

The student agrees to undertake the programme of study at the host institution as an integral part of his or her higher education.

The home institution provides the student with a guarantee that the home institution will give full academic recognition in respect of the course units listed on the agreement. The institution should consider carefully who should sign this agreement on its behalf. It is good practice that the institution also gives the student a written record showing exactly how the academic recognition will be carried out, for example, which of the institution's course units will be shown as being completed at the host. If the programme of study is to receive only partial recognition, or if the home institution is to award some of the credits itself, this must be made clear on the learning agreement.

The host institution confirms that the programme of study is acceptable and does not conflict with the host institution's rules. However, it is recognised that a modest proportion of the course units may conflict on the final timetable, if timings are not known at the time of signing. Similarly, it may not be known whether sufficient students will register for course units with a minimum registration requirement, but in signing the learning agreement the institution allocates a place on a course unit with a maximum permitted number of students, provided that a place is available at the time of signing.

A copy of the signed learning agreement should be given to all parties involved, the home institution, the host institution and the student.

Changes to agreed programme of study

Students may have to modify the agreed programme of study upon arrival at the host institution for a variety of reasons: timetable clashes, unsuitability of chosen courses (in level or content), etc. The learning agreement form therefore provides for changes to the originally agreed study programme/learning agreement.

Agreement to the changes by all parties must be obtained in order to guarantee full academic recognition of all course units followed abroad. It is important that the student knows that the courses and programme of study finally selected must be approved by the sending and receiving institutions in order to be fully recognised. Changes to the originally agreed programme of study will be indicated on the reverse side of the learning agreement and duly counter-signed by the student and the coordinators of both the home and host institutions.

It must be stressed that changes to the originally agreed programme of study should be made within a relatively short time after the student's arrival at the host institution. A copy of the new learning agreement should be given to the student and the coordinators of the home and host institutions.

Model forms

Blank copies of the model forms are appendices to this Guide.

A blank copy of the model forms, in English, follow hereafter. Supplementary blank copies of the model forms, in English, French and German, are added to this Guide.

The student application form and the learning agreement presented in this Guide are indeed only models. It is sometimes necessary for institutions to provide other types of equivalent documents in order to comply with institutional rules. However, there is an advantage in institutions keeping one form for student applications to most or all of its partners, and to administrators being accustomed to taking data from one style of ECTS application form for incoming students from its partners. Institutions using ECTS are free to use their own versions, provided they contain the elements of the models herewith presented.

THE TRANSCRIPT OF RECORDS

Credit transfer in ECTS operates by means of exchange of transcripts of records between home and host institutions and vice versa.

Transcripts of records describe the learning achievements of each ECTS student prior to and after the period of study abroad. Every course taken by the student is recorded on the transcript of records with not only the ECTS credits but also with the grade awarded according to the local grading scale and, possibly, the grade awarded according to the ECTS grading scale. The combination of grades and ECTS credits represents the performance of the student in qualitative and quantitative terms respectively.

A signed copy of the transcripts of records should be given to all parties involved, the home institution, the host institution and the student.

Transcripts of records produced by the home institution for outgoing students prior to their period of study abroad

Transcripts of records for outgoing ECTS students should include full details of previous higher education study and should be attached to the student application form sent to the intended host institution(s).

Some of the items which cannot yet be filled in at the time of the application (e.g. grades for the current academic year) can be supplemented at a later stage.

The availability of a transcript of records before the student goes abroad makes his/her insertion into a foreign programme of study easier. It helps the ECTS coordinators of the host institution to determine if the level of all course units in the programme of study proposed in the application form is appropriate and if all prerequisites have indeed been fulfilled.

Transcripts of records produced by host institutions for returning students at the end of their period of study abroad

The transcript of records constitutes the main document for supporting the student's claim for full academic recognition and transfer of ECTS credits, and provides evidence of studies abroad to future prospective employers.

Transcripts of records must be produced as quickly as possible after the student has been assessed on all course units of the programme of study, in order to facilitate full academic recognition and proper insertion into the next academic year if need be, either at the home institution if the student returns there or at a new host institution.

Further studies abroad

An ECTS student may either return to the home institution, stay at the host institution - possibly to gain a degree - or move to another host institution. The institutions themselves will decide whether or not this is acceptable and what conditions the student must fulfil in order to transfer registration and/or to get a diploma. The transcript of records will be a particularly

useful means of helping institutions to make these decisions since it provides a detailed history of the student's academic achievements.

Model form

A blank copy of the model form of the Transcript of records is appended.

The transcript of records form presented in this Guide is indeed only a model. It is sometimes necessary for institutions to provide other types of transcripts of records or equivalent documents in order to comply with institutional or national academic recognition regulations. Institutions using ECTS are thus free to use their own version of the transcript of records, provided it contains the elements of the model herewith presented.

The information provided on the rear of the transcript is important to understanding the student's performance. It is good practice to include additional information on the general performance of students in the assessments, for example a general statement about the proportion of students normally passing assessments and notes of any low or high pass rates in the course units taken by the student.

THE ECTS GRADING SCALE

INTRODUCTION

ECTS guarantees academic recognition of studies abroad by providing a way of measuring and comparing the student's learning achievements, and transferring them from one institution to another. A distinction must be made between credits, which reflect the quantity of work and grades, which represent the quality of work.

This section gives a complete description of the ECTS grading scale, explains the bases on which it was developed and how it can be used. We would like to draw the readers' attention to the fact that the ECTS grading scale is a spin-off of ECTS, developed during the course of the pilot phase as a perceived need for a scale facilitating the translation of grades obtained in another institution with a different grading system.

THE ECTS GRADING SCALE, A COMMON CURRENCY TO MEASURE THE QUALITY OF STUDENT ACHIEVEMENTS

Examination and assessment results are usually expressed in grades. However, many different grading systems co-exist in Europe. Moreover, the area of grade transfer was highlighted as a major anxiety by student participants in ECTS, as indeed for mobile students in general:

a. on the one hand, interpretation of grades varies considerably from one country to another, if not from one subject area to another, or from one institution to another;

b. on the other hand, failure to communicate grades might have serious consequences for mobile students.

As a result, the European Commission convened a working group of experts in order to identify the issues involved. Information, comments and statistical data provided by 80 institutions out of the 84 institutions participating in ECTS at that time, were taken into account to refine the proposed ECTS grading scale. All subject area groups agreed to use the ECTS grading scale in order to test its effectiveness.

The ECTS grading scale has thus been developed in order to help institutions translate the grades awarded by host institutions to ECTS students. It provides information on the student's performance additional to that provided by the institution's grades; it does not replace the local grade. Higher education institutions make their own decisions on how to apply the ECTS grading scale to their own system.

A EUROPEAN-WIDE "FACILITATING SCALE"

It arose from the various discussions held among the five subject area groups as from the beginning of the pilot phase that grade transfer could be carried out effectively with the help of a "facilitating scale" understood everywhere in Europe. This concept of a "facilitating scale" meant that:

- the scale was sufficiently well-defined and that any institution could use it to allocate ECTS grades for courses taken there;
- the ECTS grade therefore gave additional information to that afforded by the institution's mark, but did not replace it;
- the ECTS grading scale was understood by other institutions which could award an appropriate mark on their own scale for any incoming or returning student with ECTS grades;
- the ECTS grade would be indicated, alongside the mark awarded by the institution on the student's transcript of records showing the learning achievement of each student before and after the period of study.

In other words, this "facilitating scale" would increase transparency, but would never interfere with the normal processes of awarding marks within each institution.

In debating the ECTS grading scale, consideration was given to strict numerical definitions based on the ranking of students in the class and to more qualitative definitions based on a common understanding of keywords such as "good" and "excellent". Neither approach by itself was deemed to give satisfactory results. Indeed:

- a strict numerical approach would define boundaries which might be irrational against national criteria and which might be impossible to draw if the national grading system discriminates only broadly;

  similarly, clear (and indeed extreme) differences appeared between institutions in their understanding of keywords.

The ECTS grading scale is therefore based on the combined use of appropriate keywords and numerical definitions intended to assist the transparency of the keywords.

THE ECTS GRADING SCALE

ECTS grade	**Percentage of successful students normally achieving the grade**	**Definition**
A	10	EXCELLENT - outstanding performance with only minor errors
B	25	VERY GOOD -above the average standard but with some errors
C	30	GOOD -generally sound work with a number of notable errors
D	25	SATISFACTORY- fair but with significant shortcomings
E	10	SUFFICIENT - performance meets the minimum criteria
FX	-	FAIL- some more work required before the credit can be awarded
F	-	FAIL- considerable further work is required

The number of grades on the ECTS grading scale is a compromise. Fewer grades would transfer too little information; more grades would imply a level of accuracy that does not exist and would entail a great deal more mechanical work in awarding the grades. The definitions of the five pass grades have been chosen to maximise the significance of grades “A” and “E”.

The dual use of the word “excellent” and of the statistic “the top ten percent of students” represents two approaches to a common goal. The scale does not impose a definition of excellence on each institution, rather it imposes this definition on ECTS grade “A”. Much thought has been devoted to the selection of the figure of 10%. A more exclusive definition would be difficult to achieve in some institutions, but a more generous definition would lower the impact of the truly able student.

Moreover, the grading scale is not based on the assumption of any distribution of student marks; it is based on an ECTS definition of excellence. In the end, the ECTS definition of excellence and the resulting grade are designed to facilitate transfer but not to replace or obscure the mark awarded by the host institution.

Although the point above concentrates on “excellence”, the definitions of the lower grades are of great importance to a very large number of students and the same care is needed in implementing the ECTS grading scale at all levels of achievement.

HOW TO USE THE ECTS GRADING SCALE

It is not possible to define a single relationship between the grading systems of European countries. In the majority of countries, there is a grading system which is general throughout the state but by no means universal; moreover, the definition of a “pass” mark on a given scale may vary between institutions, and the extent to which all of the available range of marks is used varies considerably from institution to institution, from year to year and from subject area to subject area.

It is therefore one of the foundations of the ECTS grading scale that the scale is sufficiently well defined for institutions to make their own decisions on the application of the scale.

The way of fitting an institution’s marks onto the ECTS grading scale is as follows:

- The institution examines the distribution of the marks awarded to its students. To obtain a 10-25-30-25-10 pattern, the boundaries between grades would be drawn at 10%, 35%, 65% and 90% of the total number of successful students.

- It may not be sensible or possible to draw a statistical boundary at the mark obtained by precisely the top 10% of students, and the keywords should be considered as well as the statistics. The scale has a strong statistical underpinning, but the statistics are to be combined with a realistic descriptive approach. For example, in assigning an ECTS grade “A”, a British institution awarding first-class Honours to 8% of its students may well decide to retain the same definition of “excellence” for the ECTS grade, and an Italian institution awarding 30 e lode to 14% of its students will probably have no means of discriminating amongst these students. On the other hand, the award of Matricula de Honor by a Spanish institution is made to less than 5% of its students and so would be too limited a definition of excellence for ECTS purposes.

- The low discrimination of published marks in Spain, the Netherlands and perhaps Greece may make the drawing of ECTS grade boundaries rather difficult. In an extreme example, 70% of the students in a class were awarded a mark of 7 in the published record of a Dutch institution, easily encompassing both ECTS grades “C” and “D”. Common practice, however, is to publish the mark of 7 even though the examiner awards marks of higher discrimination, perhaps 6.8 or 7.2. It is hoped, therefore, that the examiner’s marks can be used in these countries to achieve a realistic distribution of students among the ECTS grades.

- The distribution of marks used to establish the grades is important. Mark distributions may vary from year to year of the course, and there may also be differences between quantitative and qualitative degree classes. The closer an institution can get to a single relationship between its own marks and the ECTS grading scale, the easier the grading process will become, but ease of operation must be balanced against significant and systematic deviation from the definitions of the grading scale, in other words, against injustice to students.

- Where the number of students taking a class is quite small, a strict division of this small number into the 10-25-30-25-10 pattern is not helpful. However, experience suggests that:

a. the marks over several classes of similar level follow a common distribution, and

b. the distribution of marks over a five-year period is more likely to produce a balanced result.

- The information given by the ECTS grade relates the student's performance to that of others in the class. Clearly a high-level student placed in a low-level class is likely to obtain a higher grade than he or she would be expected from his or her general performance; similarly a student accustomed to descriptive courses is likely to be at a disadvantage in a host institution which emphasises numerical skills. No grading scale will overcome this sort of problem: the information transferred on the transcript of records should show what actually happened, and not what might have happened or could have happened if ...

- Grades must be attached to the award of credits for individual classes when they are presented on the transcript of records. It is therefore important that the distribution of year-average marks is not assumed to be appropriate for the determination of these grades as year-average marks will almost certainly give a distribution significantly different to those of the constituent classes that make up the average; for example, more students will achieve a given very high mark in one individual class than will obtain that mark as an average across all the classes of the year. This can have a major effect on the definition of ECTS grade "A", and to a smaller extent on grade "B".

- ECTS grades "A" to "E" accompany the award of credit, and grades "FX" and "F" attract zero credit; the distinction between "FX" and "F" will however assist in determining the future curriculum of some not-very-successful students. Those institutions which are unable to distinguish levels of failure will use only the "F" grade and will ignore "FX".

- When both the home and the host institutions have decided how their marks are converted to and from ECTS grades, the transfer of grades takes place, for example:

a. An Italian student passes an examination in a French institution with a mark of 13 out of 20. At this French institution, the mark of 13 is a "Good" performance which translates as ECTS grade "C". The transcript of records shows both the mark of 13 and the ECTS grade "C". On the basis of these two pieces of information, the home institution in Italy awards a mark of 27 out of 30.

b. A German student barely succeeds in passing one of his classes in Spain, and the transcript of records shows both the Spanish mark of 5 out of 10 and the ECTS grade "E". The German institution recognises the credit awarded with a mark of 4.0 on a scale from 1.0 (very good) to 5.0 (insufficient).

c. A Portuguese student in The Netherlands scores a mark of 9 out of 10 which clearly puts her into the top 10% of the class. She is graded "Excellent" and the transcript of records shows both the mark and the ECTS grade "A". The home institution in Portugal uses this information to award a mark of 19 out of 20.

As can be seen from the above, higher education institutions are free to apply the ECTS grading scale the way they feel is most appropriate. Nevertheless, a certain amount of flexibility will be strongly advisable since the ECTS grading scale was designed to reflect the different grading systems existing in the EC member states and EFTA countries and cannot, by itself, cover all possible cases of grade ratings and distributions.

SPECIMEN TEXT OF THE "INTRODUCTION" FOR THE INFORMATION PACKAGE

INTRODUCTION

WHY ECTS?

The European Community promotes interuniversity cooperation as a means of improving the quality of education for the benefit of students and higher education institutions, and student mobility is a predominant element of that interuniversity cooperation. The Erasmus programme clearly demonstrates that studying abroad can be a particularly valuable experience as it is not only the best way to learn about other countries, ideas, languages and cultures; increasingly it is also an important element in academic and professional career development.

The recognition of studies and diplomas is a prerequisite for the creation of an Open European area of education and training where students and teachers can move without obstacles. That is why the European Credit Transfer System (ECTS) was developed in a pilot scheme established within the Erasmus programme as a means of improving academic recognition for study abroad. The external evaluation of ECTS has demonstrated the potential of the system and the European

Commission has decided to include ECTS in its proposal for the Socrates programme, in particular in Chapter 1 on higher education (Erasmus). The ECTS system is now moving from its restricted pilot stage towards a much wider use as an element of the European dimension in higher education.

ECTS provides an instrument to create transparency, to build bridges between institutions and to widen the choices available to students. The system makes it easier for institutions to recognise the learning achievements of students through the use of commonly understood measurements - credits and grades - and it also provides a means to interpret national systems of higher education. The ECTS system is based on three core elements: **information** (on study programmes and student achievement), **mutual agreement** (between the partner institutions and the student) and the use of **ECTS credits** (to indicate student workload).

MAIN CHARACTERISTICS OF ECTS

As stated in the introduction, the ECTS system is based on **three core elements:** information (on study programmes and student achievement), mutual agreement (between the partner institutions and the student) and the use of ECTS credits (to indicate student workload). These three core elements are made operational through the use of **three key documents**: the information package, the application form/learning agreement and the transcript of records. Most of all, ECTS is made operational by students, teachers and institutions who want to make study abroad an integral part of the educational experience. In itself, ECTS in no way regulates the content, structure or equivalence of study programmes. These are issues of quality which have to be determined by the higher education institutions themselves when establishing a satisfactory basis for cooperation agreements, bilaterally or multilaterally. The **code of good practice** called ECTS provides those actors with tools to create **transparency** and to facilitate **academic recognition.**

Full academic recognition is a *conditio sine qua non* for student mobility in the framework of the Erasmus and Socrates programmes. Full academic recognition means that the study period abroad (including examinations or other forms of assessment) replaces a comparable period of study at the home university (including examinations or other forms of assessment), though the content of the agreed study programme may differ.

The use of ECTS is **voluntary** and is based on **mutual trust and confidence** in the academic performance of partner institutions. Each institution selects its own partners.

TRANSPARENCY

ECTS provides **transparency** through the following means:

- **ECTS credits,** which are numerical values allocated to course units to describe the **student workload** required to complete them. They reflect the **quantity** of work each course unit requires in relation to the total quantity of work necessary to complete a full year of academic study at the institution, that is, lectures, practical work, seminars, tutorials, fieldwork, private study - in the library or at home - and examinations or other assessment activities. ECTS is thus based on a **full student workload** and not limited to contact hours only. In ECTS, 60 credits represent the workload of an academic year of study and normally 30 credits for a semester and 20 credits for a term.

- **The ECTS information package** which supplies written information to students and staff on institutions, departments/faculties, the organisation and structure of studies and course units.

- **The ECTS learning agreement** covering the programme of study to be taken and the ECTS credits to be awarded for their satisfactory completion, committing the student to undertaking study abroad as an integral part of his or her higher education, the home institution to guaranteeing full academic recognition of the credits gained abroad and the host institution to providing the agreed course units, subject to timetabling.

- **The ECTS transcript of records** which shows students' learning achievements in a way which is comprehensive, commonly understood and easily transferable from one institution to another.

Good communication and **flexibility** are also needed to facilitate the academic recognition of studies completed or taken abroad. In this respect the **ECTS coordinators** have an important role to play as their main tasks are to deal with the academic and administrative aspects of ECTS.

The **full range of course units** of the department/faculty using ECTS should in principle be made available to the mobile student, including taught doctorate course units. Students should be enabled to follow **regular course units** - and not courses specifically designed for them - and should not be precluded from the possibility of fulfilling the host institution's requirements for a degree or diploma. ECTS credits ensure that the programme will be **reasonable in terms of workload**

for the period of study abroad, for example, a student whose choice of course units totals 120 ECTS credits for an academic year would have to work twice as much as an average local student at the receiving institution, and a student whose programme totals 30 ECTS credits for a whole academic year would be undertaking much less work than the average local student and would in effect be studying part-time.

ECTS also enables **further studies abroad**. With ECTS, a student will not necessarily go back to the home institution after the study period abroad; he/she may prefer to stay at the host institution - possibly to gain a degree - or even move to a third institution. The institutions themselves decide whether or not this is acceptable and what conditions the student must fulfil to obtain a diploma or transfer registration. The transcript of records is particularly useful in this context as it provides a history of the students' academic achievements, which will help institutions to make these decisions.

Appendix 2

ECTS - EUROPEAN CREDIT TRANSFER SYSTEM

STUDENT APPLICATION FORM

(Photograph)

Academic year 20___ /20____ .

FIELD OF STUDY: .....

SENDING INSTITUTION

Name and full address:
.....

.....
.....

Department coordinator - name, telephone and telefax numbers, e-mail box
.....

.....
.....

.....
.....

Institutional coordinator - name, telephone and telefax numbers, e-mail box
.....

.....
.....

.....
.....

STUDENT'S PERSONAL DATA

(to be completed by the student applying)

Family name: .....

Date of birth: .....

Sex: .....Nationality:.....

Place of Birth: .....

Current address: .....

.....

.....

.....

Current address is valid until: .....

Tel.: .....

First name (s): .....

Permanent address (if different): .....

.....

.....

.....

.....

Tel.: .....

LIST OF INSTUTIONS, WHICH WILL RECEIVE THIS APPLICATION FORM (in order of preference):

Institution	Country	Period of study from to		Duration of stay (months)	N° of expected ECTS credits
1. ..... 2. ..... 3.	....	....	....	....	....

Name of student:
.....

Sending institution:

..... Country:
.....

Briefly state the reasons why you wish to study abroad ?

.....

.....

.....
.....

.....
.....

LANGUAGE COMPETENCE

Mother tongue: ..... Language of instruction at home institution (if different): .....

Other languages	I am currently studying this language		I have sufficient knowledge to follow lectures		I would have sufficient knowledge to follow lectures if I had some extra preparation	
	yes	No	Yes	no	yes	no
.....	☐	☐	☐	☐	☐	☐
.....	☐	☐	☐	☐	☐	☐
.....	☐	☐	☐	☐	☐	☐

WORK EXPERIENCE RELATED TO CURRENT STUDY (if relevant)

Type of work experience	Firm/organization	Dates	Country
.....	.....	.....	.....
.....	.....	.....	.....

PREVIOUS AND CURRENT STUDY

Diploma/degree for which you are currently studying:
.....

Number of higher education study years prior to departure abroad:
.....

Have you already been studying abroad ? Yes ☐ No ☐

If Yes, when ? at which institution ?
.....

The attached <u>Transcript of records</u> includes full details of previous and current higher education study. Details not known at the time of application will provided be at a later stage.

Do you wish to apply for a mobility grant to assist towards the additional costs of your study period abroad? Yes ☐ No ☐

RECEIVING INSTITUTION

We hereby acknowledge receipt of the application, the proposed learning agreement and the candidate's Transcript of records.	
The above-mentioned student is ☐ ☐ Departmental coordinator's signature ..... Date:	Provisionally accepted at our institution not accepted at our institution Institutional coordinator's signature .... Date :..... ..

Appendix 3

TRANSCRIPT OF RECORDS

NAME OF SENDING INSTITUTION: .....
Faculty/Department of .....
ECTS departmental coordinator: .....
Tel.: ..... Fax: ..... e-mail box: .....
NAME OF STUDENT: ..... First name: .....
Date and place of birth: ..... (sex) :.....
Matriculation date: ..... Matriculation number: .....
NAME OF RECEIVING INSTITUTION: .....
Faculty/Department of .....
ECTS departmental coordinator: .....
Tel.: ..... Fax: ..... e-mail box: .....

THE LIST OF RECORDS

Course Unit Name	Duration of Course Unit	Description of the national knowledge evaluation system, the course unit grade	The course unit ECTS grade	Course Unit in the ECTS credits
1.	2.	3.	4.	5.

To fill in the form, the following instruction should be used:

Column Number	Item Name	Explanation
1.	Course Unit Name and Code	Course Unit Code could be found in the ECTS Informational Package
2.	Duration of Course Unit	Y- full academic year 1S- one semester, 2S- two semesters, 1T- one term, 2T- two terms.
3.	Description of the national knowledge evaluation system, the course unit grade	
4.	The course unit ECTS grade	The Description of ECTS knowledge evaluation is listed in Table.2.1
5.	Course Unit in ECTS credits	One full academic year – 60 ECTS credit, One semester – 30 ECTS credits.

Appendix 4

ECTS - EUROPEAN CREDIT TRANSFER SYSTEM
LEARNING AGREEMENT

ACADEMIC YEAR 20..../20.... - FIELD OF STUDY: .....

Name of student: .....
Sending institution:.....
Country: .....

DETAILS OF THE PROPOSED STUDY PROGRAMME ABROAD/LEARNING AGREEMENT

Receiving institution: .....
Country: .....

Student's signature..... Date: .....

Sending institution This is to confirm, the signed documents are valid	
ECTS deparment coordinator ..... Date:	ECTS university coordinator ..... Date.....
Receiving university This is to confirm, the signed documents are valid	
ECTS deparment coordinator ..... Date:	ECTS university coordinator ..... Date: .....

Student's family name..... Sending University: ..... Country:.....

Curriculum Updates (if exist)

Course Unit Code	The Informational Package Course Unit Name	Deleted Course Unit	Added Course Unit	ECTS credits updated
				.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....
.....	.....	☐	☐	.....

Student's signature..... Date: .....

Sending institution

This is to confirm, the signed documents are valid

ECTS deparment coordinator ..... Date:	ECTS university coordinator ..... Date.....

Receiving university

This is to confirm, the signed documents are valid

ECTS deparment coordinator ..... Date:	ECTS university coordinator ..... Date: .....

Student's family name.....

Sending University:

.....

Country:.....

Навчальне видання

Методические указания по использованию Европейской системы учебных кредитов *в структуре высшего образования Украины*

Упорядники: робоча група з проекту TEMPUS UM_CP-20560-1999

Відповідальний випусковий В.Я. ТЕРЗІЯН

Редактор А.П. КУЗНЕЦОВ

План 2000 р., поз. 55.
Підп. до друку 1.06.2000. Формат 60×80 1/16, Папір друк.
Умов. друк. арк. 4. Облік. – вид. арк. 1.3.
Зам. № 1-77. Тираж 100 прим. Ціна договірна.

ХТУРЕ 61166 Харків, просп. Леніна, 14

Надруковано в учбово-виробничому видавничо-поліграфічному центрі ХТУРЕ 61166 Харків, просп. Леніна, 14.