Towards a European Credit Transfer System for Networked Learning (ECTS-NL)

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Abstract

In this paper an ECTS system for Network Learning (ECTS-NL) is proposed as the framework for developing Network Learning courses and studies. After a short introduction to Network Learning and the ECTS system, the necessary extensions and modifications are made to the classical ECTS system, to create an ECTS-NL system that is both capable to provide the underlying structure for developing NL-courses and is also flexible to cope with NL-courses provided by different universities of different countries. The Top-Down approach to the allocation of credits was chosen. In the paper the structure of the proposed ECTS-NL is presented, giving explanations for every ECTS-NL field. The benefits of the new ECTS-NL system are discussed and possible uses are proposed.

1. Introduction to Network Learning & ECTS

An overriding theme of much of today's discussions on issues regarding Distance Learning in the European Union is that of forming alliances among Institutions for the development of joint programmes which are delivered through information and communication technologies (ICTs). Several factors are playing a catalytic role towards this trend. Those factors include:

- Education policy documents both at national and at the European level promote this kind of collaboration**.**
- Existing networks of institutions promoting student and staff mobility schemes, basically through Socrates and Leonardo programmes are now extending their collaboration towards Open and Distance Education and e-learning.
- More mature Technology: Access to resources over the Internet provides academic staff and students with opportunities that were previously beyond their reach.
- New markets for higher education are emerging, both at the academia where student populations constantly increase in most EU countries and in industry, where continuing education, corporate training and lifelong learning in general become a must.

During the past 10 years consortia of institutions, under the umbrella of European Union funded projects, have started testing new models for the provision of Networked Open and Distance Learning. Such a type of ODL model has been studied extensively in the context of MECPOL project (Goodyear, 1997; MECPOL, 1998; Haugen, 1998), where Networked Universities are defined as "Virtual Learning Institutes that are created through collaboration between two or more universities with the aim of providing networked open learning opportunities to students". This idea of the Virtual Learning Institute or Networked University has been tested under a number of projects (such as DoODL, SHARP and EuroCompetence), where short-term collaborations have been established, for the development and provision of Networked Open Learning courses.

A more systematic approach towards a Networked University is that of the MENU project which is currently under way. The MENU (= Model for a European Networked University for e-learning) project sets out to create a model for a European Networked (Virtual) University, providing a variety of e-learning opportunities. The institutions participating in the above project have decided to establish a European Master Degree Programme as a demonstrator, showing:

- Specification of structure and content, with a preliminary study plan
- Establish academic and formal acceptance and agreements

In describing the MSc study program and the courses to be offered at the pilot phase a standard specification procedure is being needed, which should be recognisable and acceptable by all partners of the MENU consortium. The European Credit Transfer System (ECTS) is probably appropriate to play such a role but it needs adaptation in order to accommodate the description of all the necessary procedures having to do with the ODL-Networked nature of the study program.

Over the last years ECTS has been proven an excellent tool for the creation of transparency of the study programmes, for "building bridges" between institutions and widening the choices available to students. ECTS is based on three core elements:
- information (on study programmes and student achievement)
- mutual agreement (between the partner institutions and the students)
- and the use of ECTS credits (to indicate student workload).

There are two main issues that differentiate the ECTS from a system to be applied to Networked Learning – lets call it ECTS-NL:
- The curricular to be described is a joint programme where two or more institutions collaborate
- The courses offered are strongly based on e-learning technologies

The acceptance of ECTS-NL as the main credit system in ENU, removes the barrier towards Quality Assurance (QA), which is the incompatibility of course design, between partner institutions.

The following are issues regarding the lifecycle of a NL course that should be considered:

- The course material may include course lessons, exercises and additional material including audio cassettes videotapes, CD-ROM etc.
- Enrolment of students to the NL course could be accomplished electronically over the web.
- The distribution of the courseware material can be in asynchronous and/or synchronous mode through the Web.
- Students having received the NL course material are able to study on their own pace for a specific period of time.
- A successful NL course should involve a great deal of interactivity between teacher and student and among students themselves. This can be accomplished by a number of ways such as trough Internet/www, teleconferences, videoconferences or the simple solution of chat meeting or bulletin board.
- Course assessment could also take place electronically. In case a more formal approval is needed for the course taken students could enrol for an exam. The examination could take place either at the TEACHING CENTRE or at a STUDY CENTRE, which is near by the student location.
- Monitoring the NL course and Technical support should be provided to the students

2. A Flexible NL Study Program

In designing a joined study programme to be offered through Networked Learning a Networked University has to face a number of critical issues. These issues can be categorised in four levels namely:

(a) Programme Design level. In this level, questions that should be answered include the following:
- Is the programme designed according to some commonly accepted criteria?
- Is there a consultation of professional bodies that affect the decisions made for the curriculum?
- What are the overall aims and objectives of the programme?
- What are the overall learning outcomes of the programme?

(b) Course Design Level. In this level, questions that should be answered include the following:
- Is there a commonly accepted policy on the method of NL course design?
- Which institution is responsible for the design of each course?
- Is there a commonly accepted credit system?
- How many credits are in each course?
- What are the aims and objectives of each course?

(C) Course Delivery. In this level, questions that should be answered include the following:
- Is there a commonly accepted policy on the methods of NL course delivery?
- What are the methods of course delivery?
- What is the process of selecting methods of delivery?
- Do these methods effectively exploit information technologies?

(D) Course Assessment. In this level, questions that should be answered include the following:
- Is there a commonly accepted policy on the methods of NL course assessment?
- Is there a commonly accepted marking scheme?
- Is there a consensus among institutions of what individual marks or range of marks mean?
- Are there clear examination procedures?

It is obvious that in a ENU which is a consortium of institutions functioning in different counties of the EU, all the above questions are answered in different ways. It is also more than obvious that the final user, the student, should not have any involvement with all these questions. On the contrary he/she needs a very clear view of the Programme structure and on the relevant courses. The same applies to all other "users" of the ENU teachers involved in the development and delivery of the courses, administrators, etc.

We have realised that using the underlying philosophy of the ECTS system will help a lot in the process of simplifying the development of courses and studies. This underlying philosophy is mainly based on the Top-Down approach to the allocation of credits to courses. The starting point should be the full programme structure and the normal pattern of courses a student would have to take in an academic year or in an academic semester 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 or 30 credits for a semester, thus making credit transfer very difficult.

To have an effective and flexible collaboration scheme in designing a joined degree programme it has been decided to apply this top down approach at least in two levels:
- Level 1: Each semester is allocated with 30 ECTS credits
- Level 2: Each semester has a fixed number (N) of course-module units with the same number of credits (30/N) allocated to them

As an example one might consider each semester having 5 course modules of 6 ECTS credits each, or 3 course-modules of 10 ECTS credits etc.
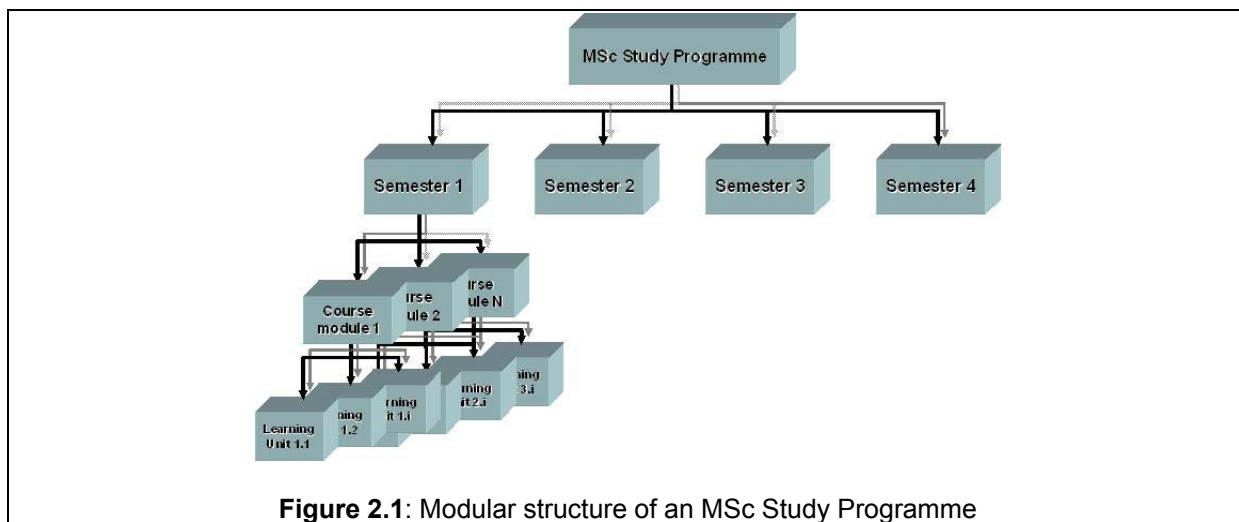
Each course-module in turn could be consisted of a number of learning units (learning objects). A Learning Object is considered as a self-standing unit of instructional content that meets a learning objective. In such a way one can have clear decisions on which partner institution(s) of the ENU could take over the responsibility of designing and/or delivering each course-module. Those responsible for the course-module, in most of the occasions have the freedom of specifying the number of learning units, the content, method of delivering/teaching etc.

It has to be noted with emphasis that the notion of semester in the context of a Networked Learning study programme could be considered "virtual". This is due to the fact that the programme should be flexible enough, since different institutions with different time schedules might offer course modules. Also students following the courses might need to work on their own time pace as long as the prerequisites and post requisites of the course modules are preserved. In this respect, when we talk about a semester this could be interpreted as a chunk of course modules of 30 ECTS credits in total. The same applies for a year: It is a chunk of course modules of 60 ECTS credits in total.

Among the advantages of such a modular approach in designing a joined programme are the following:
- Standardisation: Those designing a course-module know in advance the exact amount of workload the module should have and are guided in implementing it with specific learning units.
- Flexibility: It is very easy to Develop interchangeable course-modules that can be assembled, disassembled and re-used "quickly".
- Distributed development of course-modules: More than one institution can collaborate for the design, development and delivery of a course-module.
- Adaptability: a course-module can be localised to diverse student populations or special target groups

Figure 2.1 depicts the modular structure of an MSc study programme of 120 ECTS credits. Each course-module in the programme is allocated by 10 ECTS credits.

Figure 2.1: Modular structure of an MSc Study Programme

Figures 2.2, 2.3 and 2.4 give different views of the same study programme as seen by different perspectives. Figure 3.2 depicts the view of the ENU consortium developing the study programme. In this occasion three institutions (TEI, HSH and UoG) are collaborating universities offering course modules of 10 ECTS credits. There is also a project thesis of 30 ECTS credits.

TEI	HSH	HSH	
10 ECTS credits	10 ECTS credits	10 ECTS credits	**Project Thesis**
HSH	UoG	UoG	
10 ECTS credits	10 ECTS credits	10 ECTS credits	30 ECTS credits
TEI	TEI	UoG	
10 ECTS credits	10 ECTS credits	10 ECTS credits	

Figure 2.2: ENU view to MSc Degree

In Figure 2.3 the view of a student from TEI who has enrolled in the above MSc degree is presented. The student distinguishes between course modules offered by his institution and course modules offered by all other institutions, which are viewed simply as ENU modules

TEI	ENU	ENU	
ENU	ENU	ENU	**Project Thesis**
TEI	TEI	ENU	

ENU	ENU	ENU	
ENU	ENU	ENU	**Project Thesis**
ENU	ENU	ENU	

Figure 2.3: TEI student view to MSc Degree   **Figure 2.4:** External student view to MSc Degree

Figure 2.4 depicts the view of external students who has enrolled to the ENU for the MSc degree programme. He views all course modules as offered by the provider.

3. The proposed ECTS-NL Information Package

Apart from describing the structure of the programme and the course-modules each ENU should produce an **ECTS-NL Information Package.** This information package is a complete document describing:
- The structure of the ENU consortium
- Practical information of how one can became a student of an ENU
- Study programmes offered by the ENU with their description

Starting from the standard way of describing the Information Package as given in the ECTS framework one should make the apropriate tranformations in order to adapt it to the special characteristics of Networked Learning. These transformations are shown in tables 3.1, 3.2, and 3.3. Left columns represent the traditional on Campus ECTS Information Package, while right columns show the necessry entries regarding the ECTS-NL Information Package. The description of all these entries are given in sections 3.1, 3.2 and 3.3 respectivelly.

3.1 ECTS-NL ENU Description
It has been decided (MENU Strategic Plan, 2002) that a European Networked University (ENU) will be designed and implemented as a Virtual University that is not a legal entity. Therefore ENU will be a virtual university, formed as a joint venture of higher institutions that will not offer qualifications by itself, but will delegate courses and degrees to individual institutions. ENU is obviously much more than a course broker, and it also can't be classified as a corporate university since it has no relation to corporate organisations. ENU will act as a broker for courses and prostgraduate degree programs to be offered by a consortium of actual European Universities officially tied to ENU.

	THE INSTITUTION	ENU Consortium
A.	Name and address	Name, [address] and URL
B.	Academic calendar	Academic calendar
C.	The institutional coordinator	The ENU coordinator
D.	General description of the institution	General description of the consortium
E.	Registration procedures	Registration procedures

Table 4.1: From Institution to ENU Consortium

In descriping a ENU Consortium the guidelines given bellow could be followed:
Name and address: Complete name and URL address of the portal suporting the ENU should be given, as well as its e-mail box. For administartive issues ENU postal address (if applicable), telefax and telephone numbers (with country and region or city dialling codes)
Academic calendar: Dates of the academic year, course programme (year, semesters, terms), main examination periods and holidays. The academic calendar could be the same as for traditional universities, members of the consortium collaborating for the ENU. Altrernatively in case the study programme is flexible (see the notion of "virtual" semester/ year as discussed in section 3) rules specifying the sequence of events during the study period should be given.
The ENU coordinator: The Networked University must appoint a person which will act as the ECTS ENU coordinator. For this person one must give 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 by telephone or any other synchronous metod of communication should be indicated.
General description of the consortium: A general description of the consortium must be provided. Additionally or (optionally) a brief description of each partner must included. The iformation concern a brief history of the ENU followed by a description of its size (enrolments, staff strength), status (public or private, university or non-university), organisation and structure (schools, departments).
Registration procedures: Information under this heading is essential in determining the feasibility of a study programme. It should include the following where applicable:
1) Application deadline
2) Dates and deadlines for registration and documents to be completed and submitted and the deadlines for them; In ENU a part of the regiastration could be done by electronic submition and the hardcopies of the required documents must be accomplished by ordinary mail or fax.
3) Details regarding any preparatory programme or induction course, where applicable;
4) Linguistic requirements, including the level of proficiency advised or required, any mandatory certificate of ability, and language preparation courses or proficiency tests, etc.;
5) Information as to any financial outlay required from students.

3.2 ECTS-NL General Practical Information for ENU

The general practical information in the case of a ENU, mainly concerns the ENU portal through which a student has access to its facilities. In providing the general practical information for a ENU the guidelines given bellow could be followed:

	GENERAL PRACTICAL INFORMATION	ENU Portal Description
A.	Host country formalities	Not needed
B.	Getting there	Technology Infrastructure needed
C.	Cost of living	Not needed
D.	Accommodation	Not needed
E.	Health and insurance	Not needed
	1. Medical facilities	
	2. Special needs students	
	3. Insurance cover	
F.	Study facilities at the host institution	Study facilities (Support & Help)
	1. Libraries	Access to Digital Libraries Digital Bookstore
	2. Specialist	Local facilitator Academic Advising Technical Assistance
G.	Other practical information	Other practical information
H.	Extra-mural and leisure activities	Not applicable
		Administration – Enrolment Procedures
		Fees

Table 3.2: General practical information regarding the ENU Portal

Technology-Infrastructure needed: Provide technology and infrastructure requirements needed by someone to become a distant student of the ENU and follow a study programme.

Study Facilities: Provide a description of the portal (URL) and the facilities supported by. These facilities refer to: access to digital libraries and other databases, search engines facilities, online bookstore, online Helpdesk for technical assistance, online help system that explains basic concepts and principles of the NU, student Tracking, application forms online, academic support and advising, local facilitator etc Furthermore it is useful to provide a Help Desk facility description of the learning environment tools which are in use for the delivery of the course modules. These environments may contain: a) the presentation/lecture area where the educational material (in any format) is published (text files, web-sites, poer point slides, video etc), b) the working area with software tools, group-ware, students' workbook porfolio etc, c) the knowledge area d) the private area for private files, workbook, personal work/study plan etc, e) the communication environment (synchronous or asynchronous)

Other practical information: Also practical information must be provided concerning administrative issues other than registration (e.g. enrollement), on bank details for the fees etc.

3.3 ECTS-NL concerning the ENU Department (The Consortium of Departments)

The ENU Department is formed as a Consortium of Departments or Faculties collaborating for the provision of a specific Study Programme. These are departments coming from the ENU member Institutions. As it is obvious not all ENU members participate in the ENU Department.

In descriping the ENU Departmet the guidelines given bellow could be followed:

General description of the department
- The ECTS departmental coordinator is appointed by the ENU: Comprehensive contact information, including the full name, address (including a P.O. box like address 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 a synchronous way of communication (e.g. telephone, net-meeting) should be indicated.
- 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.
- General description of the departments of NU institution members collaborating.

- Brief description of the specialist facilities. Description of the digital libraries and other databases facilities available to the students
- List of the degree programmes offered and duration of studies.
- A description of the principal teaching and learning methods used and on the ways in which students are assessed including, for example, written examinations, the results of practical project 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). In a NU it is important to describe the particular pedagogies used and the ways of communication for the needs of the virtual clossroom activities sa well e.g. if there is somme face to face sessions or synchronous activities etc
- The ENU adopts the ECTS grading scale. The information should describe the system used, if necessary per course unit in order to facilitate the conversion of grades or marks to a rating on the ECTS grading scale.

	THE DEPARTMENT	THE ENU DEPARTMENT (The Consortium of Departments)
A	General description (Information on the department and characteristics general to all courses.)	General description of the departments of ENU institution members collaborating.
B	Degree structure	Degree structure
	1. Qualifications	1. Qualifications
	2. Course structure diagram	2. Course structure diagram
		3. Degree Award
		4. Diploma Supplement?
C	Individual Course Units	Individual Course-Module Units
	1. Identification	1. Identification
	2. Description	2. Description
	3. Level	3. Level
	4. Mandatory or optional course units	4. Mandatory or optional course units
	5. Teaching staff	5. Teaching staff
	6. Length and period (1st semester, 2nd semester etc.)	6. Length and period (1st semester, 2nd semester etc.)
	7. Teaching and learning methods	7. Teaching and learning methods
		8. Method of Delivery
		9. Networked Virtual Classroom Technological Infrastructure (Software/Hardware) Asynchronous Communication Synchronous Communication
	8. Assessment	10. Assessment
	9. The language	11. The language
	10. ECTS credit allocation	12. ECTS credit allocation

Table 3.3: Description of ENU Department offering a specific Degree Programme

Degree structure: This section should complement the information given immediately above to include the following:
- **Qualifications.** Description and structure of the regular degree programmes offered through the ENU the department. Information on how students could fulfil the requirements for a degree/qualification.
- **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.
- **Degree award.** ENU grants no degrees, certificates, or diplomas by itself, but it will facilitate the process of obtaining them by the prospective people. These qualification titles will be granted by one of the partner universities to ENU. Each partner University will be the host University for a variable number of qualification titles. The learning audience of ENU is postgraduate students and lifelong learners, both on- and off-campus.
- **Diploma Suplement.** Since the number of courses may vary from student to student due to the flexible nature of the ENU Study Programme, the diploma suplement must accompanie the Degree awarded and describe all courses taken as well as the final thesis, or any other qualification earned by the student.

C - Individual course units

In principle all course module units should be included in the information package. Course module units are defined by the ENU department and they may be grouped into larger modules or blocks of learning within the global course structure (see section 2 of this paper). In cases where the availability of course module 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. The description of the individual course module units is the most important part of the information package. Its preparation requires special care and should include the following:

- **Identification:** The title of the course module unit and its code (if any).
- **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.
- **Level:** Course module 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) Postrequisites: A list of possible course module units having as prerequisite the one described.
  c) Aims and objectives: the description of the intended learning outcomes of each course unit, in terms of its aims and objectives;
  d) Bibliography: any text books or other learning material (in paper form or on-line) which they will be required to use as the course unit progresses.
- **Compulsory or optional course units:** The information package should state whether the course module unit is compulsory in that it must be successfully completed by all students seeking to obtain a given qualification/degree, or whether it is one of a range of options, only a limited number of which have to be completed.
- **Teaching staff:** Full names should be given for staff involved in the delivery of a course module unit.
- **Length:** The total time normally required to complete the course unit should include the number of tranmissions 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.
- **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: virtual lectures; tutorials (conventional tutorial arrangements or special provision for individual tutoring should be specified); group seminars or workshops; virtual laboratory work; project or fieldwork; other practical activity; other methods.
- **Method of Delivery:** In a ENU all the above in most of the occasions are developed on the Web e.g. lectures are published on the web; projects and collaborative work, tutoring and academic advising is developed on the web etc.
- **Networked Virtual Classroom:** Developing NL courses requires pedagogies appropriate for the Web. Furthermore one should described the V classroom activities which are running asynchronously and those which are running synchronously. Finally the technological infrastructure requirements (for both hardware and software) must be described.
- **Assessment:** The nature, duration, timing and frequency of forms of assessment specific to the course module unit should be carefully enumerated and described. Examination periods may have to be stated if different from the standard examination periods of the ENU institution. Examination procedures and formalities should be detailed, for instance deadlines for registration. Examinations can take place either on line through the Web, or in a local study center. In this case a description of the local study center (address etc) and of the specific exam procedures should be given.
- **The language.** The course modules offered through the ENU Department are expected to be available in a common language (e.g. english). Some of the V classroom activities, in a local envoronmnet (tutorials, academic advicing) could be developed in the native language. Any course units offered in languages other than the common one should be specified.
- **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.

4. Summary-Conclusions

In this paper, after a brief introduction to Network Learning and the ECTS system, an ECTS system for Network Learning (ECTS-NL) was proposed for structuring Network Learning courses provided by Virtual Universities. All the necessary extensions and modifications were made to the classical ECTS system to capture the natural differences that exist to courses provided through Network Learning. The new ECTS-NL framework provides the flexibility that is necessary in Network Learning courses. Guidelines and explanations are given for completing every ECTS-NL field. Advantages of the new ECTS-NL system such as Standardisation, Distributed development of course-modules and Adaptability were identified and will be tested in the MENU project.

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