EDUCATION AND CULTURE

LEONARDO DA VINCI

Community Vocational Training Action Programme

Second phase: 2000-2006

APPLICATION FORM for

Pilot projects (including Thematic actions), Language competences, Transnational networks, Reference material

Version 2006

Reserved for the European Commission or the National Agencies

Country	*Year*	*Selection procedure*	*Pre-proposal or full proposal (P / F)*	*Project number*
				PP- TH- LA- NT- RF-

EUROPEAN COMMISSION

RECEIPT ACKNOWLEDGEMENT

Name of promoting organisation	Slovak University of Technology in Bratislava Faculty of Mechanical Engineering, Department of Mathematics
Name of contact person	doc. RNDr. Daniela Velichová, CSc.
Street Number Street	17, Nám. slobody
Country code - Postcode - Town/City	SK - 812 31 - Bratislava

Title of proposal:	European Virtual Laboratory of Mathematics
Date you sent in your proposal	……... / ……. / …….

This page will be returned to you when we have received your application form. Please therefore complete the information above clearly.

Reserved for National Agencies and European Commission:

We acknowledge receipt of your application concerning your proposal:

Country	*Year*	*Selection procedure*	*Pre-proposal or full proposal (P / F)*	*Project number*
				PP- TH- LA- NT- RF-

Please use this number in all communication with your National Agency and/or the European Commission.

Yours sincerely,

Date:

NB: Please consult the General Guide for promoters,
the specific Guide for the measure under which you intend to submit your proposal, and the Administrative and Financial Handbook
before completing the application form

Please note that:

- p.1: the authorised signatory is required to append his or her original signature at the bottom of the page

- p.2: the authorised signatory is further required to append his or her original signature on the Declaration of Honour

PLEASE COMPLETE THE ON-LINE APPLICATION FORM, TOO,
AVAILABLE AT THE FOLLOWING ADDRESS:
http://leonardo.cec.eu.int

A. PROMOTING ORGANISATION

The proposal must be submitted by a private, public or semi-public organisation

A.1 . Data concerning the promoting organisation

Name of the organisation in national language *(full and abbreviated if applicable)*	Slovenská technická univerzita v Bratislave, Strojnícka fakulta
Name of the organisation in EN, FR or DE *(if available)*	Slovak University of Technology in Bratislava, Faculty of Mechanical Enineering
Type of organisation[1]	08 U

Head Office

Street	Námestie slobody	
Number	17	
Postcode	812 31	
Town/city	Bratislava	
Country	Slovakia	

Contact person[2]

Name	Mr□ Ms x	Daniela Velichová
Position	Vice-head of Department of Mathematics, associate professor	
Street	Námestie slobody	
Number	17	
Postcode	812 31	
Town/city	Bratislava	
Country	Slovenská republika	
Telephone	++ 4212 / 5729 6115	
Fax	++ 4212/ 5292 5749	
E-mail	daniela.velichova@stuba.sk	
Website	http://www.km.sjf.stuba.sk	

Authorised signatory

Name	Mrx Ms□	Doc. Ing. Karol Jelemenský, CSc.
Position	Dean of the Faculty	

The undersigned certifies that all information given in this form is accurate.

Date Signature Stamp

[1] Please use type codes as in annex 4.

[2] See definition in the General guide.

A.2. Declaration of Honour

I, the undersigned, doc. Inmg. Karol Jelemenský, CSc.…….
representative of the organisation: Slovak University of Technology in Bratislava, Faculty of Mechanical Engineering…
address: Nám. Slobody 17, 812 31 Bratislava, Slovakia……..
promoter of the proposal: European Virtual Laboratory of Mathematics……
hereby declare on my honour, on this date, that this organisation:

- is not bankrupt, being wound up, or having its affairs administered by the courts, has not entered into an arrangement with creditors, has not suspended business activities, is not the subject of proceedings concerning such matters, nor, in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
- has not been convicted of an offence concerning its professional conduct by a judgment which has the force of 'res judicata';
- has not been found guilty of grave professional misconduct;
- has fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which it is established;
- has not been the subject of a judgment which has the force of 'res judicata' for fraud, corruption, involvement in a criminal organisation or any other illegal activity detrimental to the Communities' financial interests;
- following another procurement procedure or grant award procedure financed by the Community budget, has not been declared to be in serious breach of contract for failure to comply with its contractual obligations;
- is not subject to a conflict of interest (for family, personal or political reason or through national, economic or any other interest shared with an organisation or an individual directly or indirectly involved in the selection or the contracting of the proposal);
- is not guilty of misrepresentation in supplying the information required by the European Commission during the selection phase and has not failed to provide the requested information.

Furthermore, I hereby declare on my honour that this organisation, in order to successfully implement the submitted proposal, has:

- the adequate legal capacity
- sufficient and stable financial sources
- the required competencies and professional qualifications.

I acknowledge that in case of false declarations, that administrative and financial sanctions could be implemented against me or against my organisation.

Date and Signature:

Stamp of the Organisation:

A.3 CO-ORDINATING ORGANISATION

To be completed only if project co-ordination is delegated to an organisation other than the promoting organisation

Name of the organisation in national language *(full and abbreviated if applicable)*	
Name of the organisation in EN, FR or DE *(if available)*	
Type of organisation[3]	

Head Office

Street	
Number	
Post code	
Town/city	
Country	

Contact Person[4]

Name	Mr□ Ms□	
Position		
Street		
Number		
Postcode		
Town/city		
Country		
Telephone	++ /	
Fax	++ /	
E-mail		
Website	http://	

[3] Please use type codes as in annex 4.

[4] See definition in the General guide.

A 4. Legal Entity Form

Only to be completed for full proposals under procedure B and C

Please complete the appropriate Legal Entity form for the promoting organisation and attach the requested documents.

Note that 2 different forms are provided: one for private companies, associations, etc. and one for public organisations.

LEGAL ENTITY FORM (1)

PUBLIC ENTITIES

TYPE OF ORGANISATION	**University**
NAME(S)	**Slovak University of Technology in Bratislava**
ABBREVIATION	
OFFICIAL ADDRESS	
POSTAL CODE	
P.O. BOX	
TOWN/CITY	
COUNTRY	
VAT NUMBER	
PLACE OF REGISTRATION	
DATE OF REGISTRATION	**(dd-mm-yy)**
REGISTRATION NR.	
PHONE	
FAX	
E-MAIL	
CONTACT PERSON	

This "Legal entity" form should be filled in and submitted together with:

- **copy of the resolution, law, decree or decision establishing the entity in question;**
- **or, failing that, any other official document attesting to the establishment of the entity.**

Date:

Name and function of the authorised representative:

Signature: Stamp:

LEGAL ENTITY FORM (2)

PRIVATE COMPANIES

TYPE OF COMPANY	
NGO (Non Governmental Organisation)	☐ **YES** ☐ **NO**
NAME(S)	
ABBREVIATION	
ADDRESS OF HEAD OFFICE	
POSTAL CODE	
P.O. BOX	
TOWN/CITY	
COUNTRY	
VAT NUMBER	
PLACE OF REGISTRATION	
DATE OF REGISTRATION	**(dd-mm-yy)**
REGISTRATION NR.	
PHONE	
FAX	
E-MAIL	
CONTACT PERSON	

This "Legal entity" form should be filled in and submitted together with:

- **a copy of any official document (e.g. official journal, register of companies, etc.) showing the contractor's name and address and the registration number given to it by the National authorities;**

- **a copy of the VAT registration document if applicable and if the VAT number does not appear on the official document referred to above.**

Date:

Name and function of the authorised representative:

Signature: Stamp:

A.5 FINANCIAL IDENTIFICATION FORM

Only to be completed for full proposals under procedure B and C

ACCOUNT HOLDER

NAME	
ADDRESS	
TOWN/CITY	
POST CODE	
COUNTRY	
VAT NUMBER	
CONTACT PERSON	
TELEPHONE	
FAX	
E-MAIL	

BANK

BANK NAME	
BRANCH ADDRESS	
TOWN/CITY	
POST CODE	
COUNTRY	
ACCOUNT NUMBER	
IBAN	

Remarks:

BANK STAMP + SIGNATURE of BANK REPRESENTATIVE (Both obligatory):	**DATE + SIGNATURE of ACCOUNT HOLDER (Obligatory):**

B. PROJECT OUTLINE

B.1 GENERAL INFORMATION

Measure: *(Please tick one box only)*	Pilot projects (PP) x Transnational Networks (NT) □ Reference Material (RF) □ Language Competences (LA) □
	If your Pilot project is a Thematic action (TH), to be submitted in the framework of procedure C, please tick also here □

Title *(max. 200 characters, including spaces)*	European Virtual Laboratory of Mathematics

Acronym/short title *(max. 25 characters)*	EVLM

Which objective(s) of the Programme does your project address? *(Please refer to the General Guide)*	x a "to improve the skills and competences of people, …" x b "to improve the quality of, and access to, continuing vocational training …" x c "to promote and reinforce the contribution of vocational training to the process of innovation …"

Which priority in Call 2005-2006 does your proposal address? *(Please indicate only one priority)*	□ 1 Promoting transparency of qualifications □ 2 Developing the quality of VET systems and practices □ 3 Developing relevant and innovative e-learning content x 4 Continuous training of teachers and trainers

For Thematic actions (TH) only: Which theme in the current Call does your proposal address?	□ TH.1 Credit transfer in VET □ TH.2 Validation of non-formal and informal learning

If your project targets directly one or more of the following issues, please tick the relevant box(es):	x the development of practices to facilitate access to training for people most at a disadvantage in the labour market, including disabled people x equal opportunities for women and men, with a view to combating discrimination in training provision □ the promotion of social dialogue in vocational training

Which of the following categories does your project fall into?	x development of innovation x transfer of innovation

Total number of partners per country, including promoter and co-ordinator *(Please indicate numbers in relevant spaces)*	__ BE	_1_ ES	__ IT	__ MT	__ SI	__ IS	_1_ BG
	_1_ CZ	__ EE	__ LV	__ NL	_2_ SK	__ LI	__ RO
	__ DK	__ FR	__ LT	__ AT	_1_ FI	__ NO	__ TR
	__ DE	__ CY	__ LU	__ PL	__ SE		
	__ EL	_1_ IE	_1_ HU	__ PT	_1_ UK		
Total number of partners, including promoter and co-ordinator	9						
Total number of countries	8						

Duration of project	□ 12 □ 18 x 24 months

Total budget	400 000,-Euro
Grant requested from the Leonardo da Vinci programme	300 000,-Euro
% of total budget	75 %

Target group(s)	Primary target group are university students and teachers or researchers and scientists, who will need expert consultancy in a mathematical field, or who would like to enhance their mathematical competencies using the most advanced e-learning tools and electronic study materials and courses. Other potential users are any other interested party from the non-academic sphere, from the research and development, who will need a deeper knowledge of mathematics (including the newest results and trends), details of available information sources and the latest theoretical results (in written or electronic form) or who need the solution of specific mathematical problems .
Target sector(s)	Codes M 80 K 73 K 72 *(max. the main three - please use the NACE codes as in annex 7)*
Users of the project outcomes	Codes: 07 OF 08 U 017 REC.. *(max. the main three - please use the codes in annex 4)*

If this is a "Language competences" project:

Which languages are targeted?	…….. *(please use language codes as in annex 8)*
At which levels of proficiency?	beginner □ intermediate □ advanced □

B.2 COMBINED PROPOSALS SUBMITTED IN THE CURRENT SELECTION YEAR

Is your proposal combined[5] with one or more Leonardo da Vinci proposals in the current selection year?	□ YES *(please give details in table below)* x NO

Measure	Country of submission	Promoting organisation	Title of the proposal

B.3 PROPOSALS BASED ON RESULTS OF PREVIOUS PROJECT(S)

If your proposal is based on the results of one or more previous projects under the Leonardo da Vinci or Socrates programmes, other Community programmes/initiatives (including Phare) or local/regional/national initiatives, please provide precise references to this/ these project(s) in the table below.

If you are submitting a full proposal, please enclose a copy of any products produced or in course of production within the previous project(s).

Year	Programme or Initiative	Identification number	Contracting organisation	Title of the project	Body to which the proposal was submitted and country
1994-1996	TEMPUS	JEP- 06044-93	University of St Andrews, Scotland, United Kingdom	Using Computer Algebra	EC TEMPUS Office Brussels, Belgium

2001	Socrates Programm Minerva action (ODL and ITC in Education)	90196-CP-1-2001-1-NO-MINERVA-M	Buskerud University, Konsberg, Norway	XMath	Socrates, Leonardo and Youth Technical Assistance Office, Brussels, Belgium, EC
2003	Modernisation of higher education	12002	Plovdiv University "Paisii Hilendarski" Bulgaria	Implementation of Laboratory for interactive professional systems in mathematics education	Ministry of Education and Science, Sofia, Bulgaria and World Bank
2003	Leonardo da Vinci	N/03/B/PP-165.011	Buskerud university, Kongsberg, Norway	dMath	Technical Assistance Office — Socrates, Leonardo & Youth Leonardo Department, Brussels, Belgium, EU

B.4 OTHER PROJECTS CARRIED OUT WITH COMMUNITY FUNDING

Have you, or any of your partners, already obtained financial support for a project related to this proposal[5] within the Leonardo da Vinci programme (1st or 2nd phase) or under other Community programmes/initiatives in the last five years?	x YES *(please fill the table below)* □ NO

Year	Programme or Initiative	Identification number	Contracting organisation	Title of the project	Body to which the proposal was submitted and country
2001	BALKANET	EN C 2 FPSTHN	Computer Technology Institute, Patras, Greece	Design and Development of a Multilingual Balkan WordNet	BALKANET European Commision research directories
2001	Socrates Programm Minerva action (ODL and ITC in Education)	90196-CP-1-2001-1-NO-MINERVA-M	Buskerud University College, Kongsberg, Norway	Xmath - Designing a framework for mathematical and scientific e-learning using XML, with emphasize on the evaluation of pedagogical methods	Socrates, Leonardo and Youth Technical Assistance Office, Brussels, Belgium, EU
2003	Leonardo da Vinci	N/03/B/PP-165.011	Buskerud University College, Kongsberg, Norway	dMath - Building a European Database of Mathematical eLearning Modules	Technical Assistance Office — Socrates, Leonardo & Youth Leonardo Department, Brussels, Belgium, EU

Please add extra sheet if necessary

5 Relation may concern, for instance, theme(s), target group(s) and/or sector(s), partnership structure, methodological approach, etc.

B.5 SUMMARY

Please provide a short description of your proposal (max 1 page/ 30 lines, if possible), explaining what you are going to do and why. For "Reference material", include a brief summary of the proposed research methodology. You are kindly requested to provide this summary in English, French or German. *(Parts of this summary may be used in directories of selected projects)*

Lack of interest in sciences and knowledge among young people through the Europe and their lost of interest in choosing a scientific carrier or doing research is a serious thread for the future planned development of the EU to become the most competitive knowledge based society in the world. In the same time, the conservative methods of mathematical education, insufficient knowledge and use of new teaching ICT of the university and school teachers, decreasing number of students and overall week knowledge in basic sciences call for mobilizing all relevant available resources to strengthen the educational potential of prospective methods and technologies of sharing the best knowledge materials, skills and competences. These problems and needs are also valid for all partner institutions and countries.

The proposed project has as its main aim to improve the quality level of mathematics education and application of mathematics in practice in eight European countries. The target groups are university and school teachers of mathematics who are interested in enhancing their knowledge of mathematics and the newest ICT. The final and potential users are university and secondary school students, PhD students, researchers, and people from non-academic sphere or individuals who need deeper learning or self-learning in mathematics.

The objectives of the project are:

(1) Creation of European Virtual Laboratory of Mathematics, EVML, operating on a transnational level in the form of a network of National Centres of Mathematics located at the partner institutions and working within a common framework.

(2) Development of an Official EVLM portal and its National subportals, freely accessible from the Word Wide Web.

(3) Provide assembling and support of a common virtual database of new advanced educational e-learning tools, methods and materials on mathematics, available at the partner institutions or at free internet resources. The tools and materials should be selected, researched and reviewed by experienced university teachers serving in the National Centres of mathematics. All materials will be presented in English and in national languages. The EVML database should be organized on the base of the mathematical modules as a set of well structured XML files with embedded MathML coding of mathematical formulas. The prototype of this database was developed and will be an effective outcome of the two following projects: Xmath (90196-CP-1-2001-1-NO-MINERVA-M) and dMath –(Leonardo da Vinchi N/03/B/PP-165.011).

(4) Installation and maintenance of a powerfull mathematical software, providing dynamic on-line computations.

(5) Transfer and exchange of the best existing electronic or printed materials on mathematics education and applications of mathematics between the partners.

(6) Provide expert consultancy on specific mathematics topics and transfer of skills and knowledge of innovative teaching methods, which should be accessible by electronic forums and in the opening consultation and training offices at the partner institutions.

(7) Preparation of the relevant Teacher's and Student's books, Collections of consultancy topics, and other materials concerning the EVLM activities, including dissemination of the project results.

One of the partner institutions has considerable experience with the work of a national mathematics support centre, offering students and teachers free resources to support the transition from school mathematics to university mathematics. This partner will carry out on-going monitoring of the contents of information on the project webpage and EVLM Portal, evaluation of the project progression and realisation, and consultancy through the project.

EVLM might in this way considerably contribute to the enrichment of the European Research Area.

C. PROJECT AIM

15-20 lines max per question

C.1. JUSTIFICATION OF THE PROPOSAL

1. Describe the target group(s) and target sector(s) concerned by your proposal. Describe also the final and potential users of your project's results.
2. What needs, in relation to these target group(s) and sector(s), does your project address? How did you identify these needs?

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1. The primary target groups are university lecturers, researchers, secondary school teachers, trainers, or scientists who are interested in improving their knowledge and understanding of mathematics, or need expert consultancy in solving their mathematical problems. Targeted sectors are educational institutions from secondary schools to universities in all partner institutions and countries.

Final users are students from secondary school up to PhD, any interested party from the non-academic sphere, from industry, research and development, who will need a deeper knowledge of mathematics - including the latest results and trends, details of available information sources and the latest theoretical results (in written or electronic form), or who ask for help with the solution of specific mathematical problems.

The potential users of the project results may be any training organisations, schools and university training organisations providing continuous education and distance learning or life-long learning. Potential final users are also private individuals as home self-learners, interested in self-education who, for personal reasons, may not normally engage with formal education including disabled people and people perceiving discrimination due to social and gender stereotypes.

2. There is an urgent need for an authoritative catalogue of available source materials for educational purposes in mathematics due to the appearance of different learning and teaching materials - in printed or electronic form and in many national languages. A platform providing not only information on their availability, but also a centralised database and links to the resources appearing in such numbers on the internet is extremely timely. Expert consultancy on how to use the aforementioned materials, on-line or personal help to interested users and the capacity to translate relevant materials to / from English will be necessary in order to disseminate existing e-learning resources and increase their overall usage and utilisation, in Mathematics particularly. Throughout Europe the teaching of Mathematics is still predominantly provided in a traditional way, though the subject itself is more and more important with respect to the fast development of ICT (which relies heavily on the development of Mathematics itself). Despite the fact that many new e-learning materials are available or appear frequently on the internet, these are often not disseminated properly and not widely utilised. Many educational institutions develop special educational materials at the institutional level and for their own specific purposes (often supported by grants from European programmes) which could be well shared by other institutions. EVLM will serve as a platform to disseminate relevant information and a virtual database enabling the share of available resources and training in how to use them.
Information on the above mentioned development could be found in published materials from many survey done on national and European level, e.g. Eurobarometer EC survey results on European level, many survey results in UK (Measuring the Mathematics Problem, 2000 published by the Engineering Council, SET for success: The supply of people with science, technology, engineering and mathematics skills, 2002 published by HM Treasury, Making Mathematics Count, 2004 published by HMSO Stationery Office - the report of a National Inquiry into Mathematics Education 14-19 set up by the Government), Monitor in SR, survey on mathematical deficiency in secondary school students in Spain. The Daily Telegraph has published reasently a depressing article by Martin Read group chief executive of LogicaCMG plc and a non-executive director of British Airways plc and Boots Group plc: "A dearth of young scientists could relegate us to the economic sidelines". Some of these very powerful documents coming from the governments and from the leading engineering professional bodies in the participating countries are cited in the Annex 5. as the strong evidence for justification of EVLM project proposal.

3. What are the specific aims of the project?

4. How does the project address the programme objectives and the call priority which you indicated above?

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3. The most specific aim of the project is to provide a consultancy service in mathematics education in order to upgrade the overall level of mathematical knowledge, and to enhance competence in Mathematics within the indicated target groups. The aim is also to promote e-learning in Mathematics, to provide solutions for different target groups and help for teachers and trainers to enhance their skill in using the most advanced educational tools and environments. Consultancy not only on how to use existing materials, but also on how to develop and author their own electronic learning materials that might be shared by other interested party through the EVLM Portal, is one of the project aims, too.

4. The project meets all three programme objectives. It is aimed at improving the understanding of mathematics for a wide range of students, and at improving the skills and competencies of teachers and trainers in utilising e-learning resources for mathematics education. The project provides an opportunity for the improvement of the quality of and free access to training materials for mathematics at many institutions and in several forms, from persons undertaking institutional education to individuals engaged in self-education. It is aimed at promoting the most advanced and innovative ways of teaching, blended learning, electronic based courses and e-learning materials, and to support the process of innovation in mathematics education.

5. If you If have indicated in B.1 that your project targets **directly** the development of practices to facilitate access to training for people most at a disadvantage in the labour market, including disabled people, and/or equal opportunities for women and men, with a view to combating discrimination in training provision, and/or the promotion of social dialogue in vocational training, please explain how this will be achieved.

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5. National Centres of Mathematics will provide consultancy and transfer of knowledge, materials and skills at national level in national languages, thereby eliminating or reducing constraints and obstacles that might appear when using e-learning materials available mostly in English. The on-going development of educational resources in national languages, for a range of scientific disciplines, is of a great important in the European context. Nevertheless, all information will also be provided simultaneously in English on the transnational level. Free access to National portals for private persons as home self-learners interested in self-education independent from economic, social, cultural or any other constraints , will also give opportunities to disabled people, people prevented from engaging with formal education due to personal problems, or people who might be exposed to discrimination with respect to gender or any other social and cultural stereotypes. Individual help and care provided in the National Centres of Mathematics will aim to create a friendly environment for the encouragement of all users. Use of the most advanced ICT under the guidance of experienced tutors providing personal help and advice can greatly reduce the stress experienced by some in a competitive university environment.

6. Please explain in what way your proposal makes an original contribution to:
   - introducing changes into national vocational training systems and practices,
   - European strategies for vocational training.

   (You may wish to refer here to existing work and information at national and European level)

7. Does the innovation contributed by your proposal involve:
   - new approaches to the use of existing methods, instruments, products, so as to apply them to new theme(s) and/or target group(s),
   - new processes or products in response to existing problems,
   - new forms of co-operation/networking between partner organisations and/or political decision makers,
   - other (please specify)

   Please give detailed explanations.

8. If this is a "Reference material" proposal, please specify also the innovative aspects as regards the existing field of knowledge and the methods and tools for observation and analysis.

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6. In order to introduce a change into the education of mathematics, to enhance the role of mathematics in the general education and to stress the importance of mathematics as a scientific field, educators, teachers, trainers and tutors have to be trained first. They need to be aware of the existence of new educational methods and they must be competent and skilful in using available resources, as well as being able to develop their own educational materials at the most advanced level. This project provides a solution for enhancing these competencies. The project of the European Virtual Laboratory of Mathematics also offers the establishment of an information platform and creation of a virtual database of available learning materials on mathematics and ways to share them on national and transnational levels. It will enable the development of a relevant and innovative e-learning environment with the most up-to-date content. In this way it meets both national and transnational European strategies to improve the access to knowledge for all interested party and contributes to the on-going development of Europe in becoming the most competitive knowledge based society in the world. Networking and cooperation on the platform of ICT are among the most promising tools, and they offer the most productive opportunities for reaching these objectives successfully. Lack of information on existing products that have resulted from different projects granted by the European Commission in different programmes creates a serious constraint for their effective dissemination and utilisation by European educational institutions. A common dissemination platform for all net-based solutions for education of Mathematics is necessary in order to meet objectives of the Bologna declaration, to develop a unique European standard of a 3-level higher education scheme enabling free mobility of students, academic staff and researchers in the European academic area.

7. The innovation of the project lies in the new ways of sharing and using existing educational materials, in many forms and languages from National portals on partner institutions (with the possible extension to all European countries) and from the EVLM Portal in English. The EVLM will be one of the first European Mathematical portals using dynamic mathematical calculation engine in the web environment. The European Virtual Laboratory of Mathematics will be also one of the first which could provide shared consultancy for any theoretical request in any national language and help in solving mathematical problems throughout the Europe. Electronic information in the form of a virtual database of available resources in printed or electronic form, the material resources in the National Centres of Mathematics, e-learning educational modules and materials (both national and transnational freely available on the internet), will be shared in a blended solution. They can be used directly at the National Centres of Mathematics, or through the National Portals and common EVLM Portal. National Centres of Mathematics will serve teachers, trainers, researchers and scientists from their home institution, and they will provide a platform for cooperation of different target groups from different countries in a new form and on a higher level, within the virtual framework of networking partner organisations in the European research area.

9. If your proposal is combined with other Leonardo da Vinci proposals presented in this selection year (see section B.2), please explain the interdependence with these proposals and the expected added value.

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10. If your proposal is based on results of one or more previous projects (see section B.3):
    - Why did you choose to base it on that or those project(s)?
    - How does your proposal use those results?
    - What is the added value of your proposal compared to the previous project(s)?

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10. The coordinating institution has been and is involved in two projects: Xmath - Designing a framework for mathematical and scientific e-learning using XML, with emphasis on the evaluation of pedagogical methods, and dMath - Building a European Database of Mathematical eLearning Modules, aimed at improving the current situation in presenting mathematical context in electronic web-based materials. Results of the Xmath project, the Pilot course of Mathematics for bachelor study programmes at technical universities, which is composed from basic mathematical modules delivered in a set of well structured xml files with embedded MathML coding of mathematical formulas, is freely available on the internet in English. This most advanced e-learning material, based on the principles of the semantic web, will be the basic source material used within the proposed framework of the EVLM and is an example of excellent utilisation of ICT in a semantic way. National Centres of Mathematics may provide translations of the Pilot course to national languages, which will bring a new value to the dissemination of the material. MathML coding of mathematical formulas used in the Pilot course is to the latest standard of the W3C organisation and it is the most advanced way of presenting mathematics on the web in the contextual way, preserving the semantics, syntax and notation. Xml documents are semantic web agents enabling usage of all resources and services available on the web. Therefore, significant emphasis will be put, in the teachers training proposed by this project, on the extensive production of electronic learning materials for mathematics in this most advanced form of xml documents. Scientific editor SciWriter developed as a side product of the project dMath will be used for authoring and development of the xml documents with automatic MathML coding of mathematical formulas. The Institute of Mathematics at the University of Miskolc has contributed to develop and introduce in teaching the Computer Algebra software Mathematical MacTutor (which won the EU Software Award 1994) within the framework of the TEMPUS JEP – 06044, and the TEMPUS – IMG-95-H-2019. This software was the starting point in the development of the MacTutor History of Mathematics internet database as well. The Institute is also the coordinator of a network of 11 universities in 7 European countries within the CEEPUS programme, focused on active methods in teaching and learning mathematics. The experience and results achieved by this project will be beneficial for the cooperation of the partners in this proposed EVLM project.

C.2. RESULTS

What specific results are expected in the course of the project and on its completion? Please provide a detailed description of the expected results and specify:

- type of result (e.g. handbook, curriculum, recognition procedure, new teaching/training method, etc.),
- when they will be available,
- target group(s) concerned (final users of the results),
- languages in which they will be available,
- medium that will be used (e.g. CD-Rom, Internet, etc.),
- didactic methodology (if applicable),
- number of copies foreseen (if applicable).

For the sake of clarity, you may wish to use a table to present project results.

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1. The communication portal of European Virtual Laboratory of Mathematics and project homepage on the web (in English) will be designed and installed at the project server located at and hosted by the coordinating institution. This will be available on the Internet within the first 6 months of the project work.

2. National Portals of National Centres of Mathematics will be designed in national languages and installed at the servers located at the respective partner institutions. National Portals will be available on the Internet within the first 9 months of the project. They will provide links to the EVLM Portal.

3. A virtual database of educational materials on mathematics available at the partner institutions or materials available free on the Word Wide Web will be developed and maintained. It will be accessible form the EVLM Portal, available within the first year of the project, frequently updated and enriched by newly appearing resources. Current languages of the source materials will be used.

4. Expert consultancy will start and will be carried on in the National Centres of Mathematics and on the transnational level through the EVLM portal within the first year. All requested materials will be prepared in electronic form as xml documents, and they will be stored in the virtual database in a separate folder as consultancy items. They will be available free on the Internet from the EVLM portal.

5. National Centres of Mathematics will open their consultation and training offices at the partner institutions at the beginning of the second year of the project. They will start with the support of all interested party on an individual level, providing access to available study materials. Tutorials for students and for teachers on how to use available resources or how to prepare their own electronic learning and teaching materials will be organised within the second year of the project.

6. Translations of the Pilot course modules to national languages, or translation of other relevant requested electronic learning materials to / from English will be ready at the end of the project and available on the National Portals.

PROJECT RESULTS

TRANSNATIONAL LEVEL	NATIONAL LEVEL
Project Website in English	Project Website national versions
EVLM Central Portal	EVLM National portals
Central database of available Maths source learning materials in English	Local databases of available Maths source learning materials in national languages
Database operational manual - booklet, 100 copies + electronic version on the project website	
European Virtual Laboratory of Mathematics	National Centres of Mathematics
Collection / list of consultancy topics (in English) - included in the Central Database	Collections / lists of consultancy topics (in the respective national language) – included in the Local Databases
	Maths modules translations to national languages
Teacher's guide book (in English) – 300 copies on CD, also available on project website.	
	Student's books in national languages, 1000 copies in total, also available on National websites.
EVLM information booklets and leaflets, 1000 copies, also available on project website.	

C.3. VALORISATION (DISSEMINATION + EXPLOITATION OF RESULTS)[6]

1. How will your valorisation strategy ensure that the project results will be used as regards the target group(s), target sector(s) and potential users?
2. Please indicate the main activities of your valorisation strategy.
3. Please demonstrate that the partnership has the capacity and necessary experience to carry out the valorisation activities outlined above.

.

1. The EVLM – its Centres, portals, and experienced teacher team should operate in partner's institutions and they will be in direct contact with the project target group (university and school teachers and trainers in mathematics). All materials will be presented in English and in national languages to avoid language difficulties. Evaluation meetings with target group and potential users from academic and non-academic sphere will be organised. The expert consultancy in mathematics will be provided on request from any interested party and will be available in electronic form as an xml file. These documents will be stored in a database and available as source materials for any other potential users. Interim reports about the services provided (including all personal and on-line consultations, training and tutorials) will be delivered by all partners during the 7 planned meetings and they will be available on Internet, at the project webpage. Analysed feedback from the targeted groups undergoing training in the centres will be required.

2. All national centres will provide reports of the results achieved to date according to the plan and time limits for delivering the project products – at the end of the sixth month, at the end of the ninth month, at the end of the first year, at the end of the 18th month and at the end of the project work. The coordinating institution will gather the reports from all partners and these will be available on the project web-site on the Internet. The project web-site will present all aims, activities and achievements of the project and it will include the portfolio of all partners. It will be continuously updated on the EVLM Portal server and accessible in English. In addition, the National Portals will provide information on the project in national languages. A systematic monitoring of the project progress and work will be provided by one partner institution during the entire project. This partner will be also responsible for the main activities concerning valorisation strategy, evaluation of the interim reports and analysis of feedback from the targeted groups. All partners will be responsible for dissemination of project work, presenting results at conferences. There will be an extensive programme of dissemination. In the initial stages this will take the form of raising awareness. This will be achieved by articles in newsletters of appropriate bodies (such as SEFI and national professional bodies). As the project progresses and there are results and outcomes to communicate, members of the partner institutions will attend national and international conferences to present the EVLM project. Later in the project, the emphasis on dissemination will change from raising awareness to promoting engagement. This will be achieved through the proposed teacher development workshops. Workshops will be open to staff from the partner institutions and also to staff from other national universities and, where possible, to staff from universities in other countries. Valorisation strategy is further described in the Valorisation plan, which is the part c) of the Work programme, and it will be carried out in Work-package WP14 - EVLM Valorisation after the agreement of all partners on its implementation during the 3rd meeting of partners - Dissemination meeting.

3. All partner institutions are established universities promoting accredited higher education in the respective countries. Members of Departments of Mathematics at the partner institutions are respected scientists who are experts in their mathematical fields, competent to provide expert consultancy and experienced training of teachers, trainers and other academic staff. Experienced teachers of mathematics will provide support and help to students using e-learning facilities available at the National Centres of Mathematics in addition to the printed material resources from their libraries. Tutorials on the authorship of electronic learning materials will be promoted on a highly professional level by experts of the respective Departments of Maths experienced in development of electronic educational materials at the most advanced level. Based on the feedback gathered from targeted groups (university students, teachers and scientists) a demand on maintaining the created EVLM environment will be addressed to the respective institution authorities supported by the report on achievements and results of the project. We expect a great overall interest in suggested Maths consultancy services, due to the general lack of any free-of-charge activities of this kind due to their extra demands on a high quality,

6 See specific guidelines for valorisation plan.

knowledge and experience in both, mathematics and pedagogy.

C.4. IMPACT

1. What is the expected impact of the project, in the short and in the long term, as regards: target group(s), target sector(s), potential user(s) of the project results, and vocational training systems and practices?
2. How will the project final results be integrated and used inside training systems and training practices?
3. What is planned to ensure the expected impact of the project results at the end of Community funding?
4. To what extent are the results transferable to other groups, sectors, geographical contexts, etc.? Please explain the actions considered for this purpose.

.

1. The on-going activities of the National Centres of Mathematics will influence the growing interest in mathematics among students at the partner universities. This will result in the increasing numbers of students taking mathematical courses (these are currently at dangerously low levels in many countries), and it should improve, in the short term, their results. In the longer term, it is anticipated that the project may have an impact on re-awakening an awareness of the importance of mathematical competence and knowledge in the European research area. Greater interest from teachers, trainers, university assistants and lecturers in the use of new technologies and e-learning facilities in the education of mathematics will be a sign of the project's success in disseminating information on existing resources, as will an increase in requests to provide assistance for extensive training of prospective new authors of electronic study materials.

2. The work of the National Centres of Mathematics will become a part of the consultancy, training activities and practices provided by the partner institutions who will be interested in their on-going success. National portals will provide a database of electronic educational source materials in national languages and links to the transnational database. Personal assistance of experienced tutors working in the centres, who are established authorities, will guarantee the performance of the centres on a high level and on a large scale. The increasing demand for the development of new computer aided educational solutions, electronic study materials and e-learning facilities will play a crucial role in the process of integration of the National Centres of Mathematics into the internal education scheme. In addition, these centres will provide the most up-to-date information and they will promote usage of ICT as the most advanced platform.

3. Once established, the European Virtual Laboratory of Mathematics will continue the work that has been started during the project. Created and installed portals – national and transnational - will remain on servers, available free on the Internet, providing access to the database of relevant electronic study materials on mathematics. There will be a natural interest from educational institutions to maintain these portals and database not only for their own purposes, but also, in the transnational European context, to be informed about the development of the standards, platforms and newly developed educational strategies in mathematics. National Centres of Mathematics will prove their worth by the evidence of the consultancy and training provided, and there will be an increasing demand for these services, once they are proved to be of high quality and to be providing the latest currently available information.

4. The expertise of the project partners and the project results are language independent and will be provided in national languages as well as in English for transnational purposes, and they can be extended to other interested countries and institutions. New members interested to work within the framework of EVLM will be welcome. They can enlarge the range of available resources and contribute to solutions for education of mathematics at the European level, and they can bring new methods and views on the ways of promoting mathematical competence and enhanced understanding in the European context. This will help universities to confirm and strengthen their role as leading centres for life-long learning and research and development within the European research area. This will also help to foster a better cooperation with other institutions in the educational and research sectors and other possible sectors (industry, construction, computers and related activities, financial sector). Supporting the usage of e-learning materials via the Internet at private households for self-learners, including disabled and other disadvantaged people, will contribute to the development of the whole society towards the objectives stated in European policy for the near future.

D PARTNERS

Please provide information on all partners using the table below. Indicate the promoter as P1, the co-ordinator (if applicable) as P2, and then the other partners in alphabetical order of country code (see annex 3).

D.1.- OVERVIEW OF PARTNERS

No.	Country code[7]	Name of organisation/institution in national language[8]	Org. type code[7]	Region code[7]	Sector code[7]	Size code[7]	Contact person		Street and No. Town/City Postcode Country	Telephone Fax E-mail	Budget	
							Name	M/F			Total	Requested from Leonardo
P1	SK	Slovenská technická univerzita v Bratislave, Strojnícka fakulta	U	SK01	M 80	S4	doc. RNDr. Daniela Velichová, CSc.	F	Nám. slobody 17, Bratislava 812 31, Slovak republic	4212 5729 6115 4212 5292 574 daniela.velichov @stuba.sk	49 831 50 000	39 306 37 500
P2	BG	Plovdivski Universitet Paisii Hilendarski, Fakultet po Matematika i Informatika	U	BG3	M80	S3	Assoc. Prof. Ph.D. Snezhana Georgieva Gocheva -Ilieva	F	Tzar Assen street 24, Plovdiv 4000 Bulgaria	+ 359 32 265 84 + 359 32 945 73 snegocheva@ya m snow@pu.acad.	41 900 42 000	31 300 31 500
P3	CZ	Západočeská univerzita	U	CZ04	M80	S4	RNDr. Jiří Benedikt, PhD.	M	Univerzitní 22, 306 14 Plzeň, Czech Republic	+420 377 63 260 +420 377 63 260 benedikt@km a.zcu.cz	41 900 42 000	31 300 31 500
P4	ES	Universidad de Salamanca	U	ES41	M80	S6	Dr. Gerardo Rodrigues	M	Patio de Escuelas 1 37001 Salamanca Spain	34 980 545 000 34 980 545 002 gerardo@usal.e	41 860 42 000	31 260 31 500

[7] Please use codes as in lists annexed (annex 3 to 7).

[8] Please provide this information also in EN, FR or DE, if available.

P5	FI	Tilossilos Ltd		FI	M80	S1	Msc. Päivi Siltanen	F	Aaltosekantu 27-29, FIN-33500 Tampere Finland	+358-3-222-7250 +358-3-222-7251 tulossita@tulossit	38 280 40 000	27 900 27 000
P6	HU	Miskolci Egyetem	U	HU05	M80	S5	Assoc. prof. Dr. Péter Körtesi	M	Egyetem út 17. H 3515 Miskolc, Hungary	+36-46-565148 ++36-+ 565146 matkp@uni-misk	41 900 42 000	31 300 33 750
P7	IE	University of Limerick	U	IE023	M80	S7	Dr. Olivia Gill	F	Plassey, Castletroy, University of Limerick, Limerick Ireland	+353 61 202481 +353 61334927 john.odonoghue@ul.ie Olivia.gill@ul.ie	41 900 42 000	31 300 33 750
P8	SK	Slovenská spoločnosť pre geometriu a grafiku	OPR	SK01	M 80	S1	RNDr. Daniela Richtáriková.	F	Nám. slobody 17, Bratislava 812 31, Slovak republic	4212 5729 6394 4212 5292 5749 daniela.richtariko@stuba.sk	40 100 40 000	29 700 27 000
P9	UK	School of Mathematical and Information Sciences, Coventry University	U	UKG3	M80	S5	Prof. Duncan Lawson	M	Priory Street, Coventry, CV1 5FB, United Kingdom	+44 24 7688 8975 +44 24 7688 8585 d.lawson@coventry.ac.uk	41 950 42 000	31 350 33 750
										Total	379 621 400 000	284 716 300 000

N.B. Attach the partners' letters of intent (see Annex 1)

Please add extra sheets if necessary

D.2. CHARACTERISTICS OF THE PARTNERSHIP

1. Please describe each partner organisation (including promoter and co-ordinator, if applicable), as follows:
   - description of the organisation,
   - skills, knowledge, expertise and experience of the organisation in relation to its role in the project,
   - role of the organisation in the project. Clearly identify, in particular, partners playing a fundamental role in the dissemination and implementation of the interim and final results of the project.

If this is a "Reference material" proposal, please name the scientific co-ordinator and attach a copy of his/her CV. If appropriate, attach a list of the partners' relevant published works in the last three years.

(Please follow the partner order used in D.1 and the same numbering; use maximum 15 lines per partner)

P1 .

Slovak University of Technology in Bratislava, Faculty of Mechanical Engineering, Slovakia
www.sjf.stuba.sk

The University has a long tradition of engineering from 1937. It is the leading institution of higher engineering education in Slovakia. The Faculty of Mechanical Engineering has already helped many engineers, scientists and other professionals to develop their capabilities for success. So far, more than 17500 graduates and postgraduates have been successful at the Faculty and a total of 2150 students enrolled in the last academic year. The high professional competence and reputation of Faculty members creates the base to attract the attention of different companies and industries to solve various tasks of industrial design, production planning, process control, equipment maintenance and to find new solutions to problems of industry and society.

Experience and competence in related fields:

- Members of the Department of Mathematics have experience in computer assisted teaching using software packages such as Mathematica, webMathematica, Maple, Derive, Statgraph and many other educational programmes and e-learning materials developed by the department members.
- Development of mathematics curriculum for technical universities (within SEFI MWG)
- There is a high competence in developing web-based electronic courses and e-learning materials in xml formatted files with embedded MathML coding of mathematical formulas, and practical usage of the webMathematica computational engine on a professional basis.
- Staff from the Department of Mathematics have considerable expertise in creating web-pages and database design.
- Experience in organising conferences and seminars at an international level
- Experience of transnational cooperation within international projects in EU programmes

Partner role

1. Coordination of the project work as the contractor
2. Installation and administration of the project server, updating and organisation of the shared data in a database.
3. Design of a project webpage as a dissemination tool for the project results, in addition to participation at conferences, workshops and seminars and providing information in printed form in European scientific and professional journals.
4. Design of the EVLM Portal as the basic platform for cooperation within the framework of the virtual National Centres of Mathematics located on servers of the separate partner institutions.
5. Continuous updating of information on the commonly shared EVLM Portal and maintaining the updated database of existing resources and materials with mathematical content.
6. Development of a National Centre of Mathematics with virtual National Portal on a local server at the institution that will provide expert consultancy and training for students and academic staff.
7. Continuous updating of information on the Slovak portal, which will be the environment and working place of the local virtual National Centre of Mathematics at FEM STU available for university students and academic staff.
8. Expert consultancy on the transnational level in Geometry, Calculus and Numerical mathematics.

P2

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University of Plovdiv, Faculty of Mathematics and Informatics, Bulgaria
www.fmi.pu.acad.bg

The Faculty of Mathematics and Informatics (FMI) of Plovdiv University was founded in 1961 and now is one of the biggest in Bulgaria. FMI currently has about 1,200 students, including international students and more than 100 highly qualified academic staff. The Faculty offers Bachelor programs in Mathematics, Mathematics and Computer Science and Computer Science and Master's degree or PhD programs in Applied Mathematics, Pure Mathematics, or Computer Science. The major fields of research activity at FMI are not only traditional but also in the newest areas of mathematics and computer science. ICT are applied in education, electronic publishing, and teacher training, research, etc. Innovative educational technologies such as e-learning, multimedia and interactive systems are used in the pedagogical process. Three specialized computer laboratories assist the education both in mathematics and computer science. For more information, please visit our websites: www.fmi-plovdiv.org, www.fmi.pu.acad.bg, www.pu.acad.bg.

! Experience and competence in related fields:

- More than ten years of experience in using professional interactive software packages such as Mathematica, Maple, SPSS, Statgraf, Matlab in mathematics education and research.
- Extensive experience in computer assisted teaching, including programming in different languages.
- Extensive experience and competence in mathematical modeling and solving practical problems by the use of computers and innovative technologies.
- Some experience in preparing e-learning materials and evaluating e-tests.
- Experience and skills in web design.

Partner role:

1. Development of a National Centre of Mathematics with virtual National Portal on a local server of the institution that will provide expert consultancy and training for students and academic staff.
2. Continuous updating of information on the Bulgarian portal, which will be the environment and working place of the local National Centre of Mathematics at University of Plovdiv available for university students and academic staff.
3. Continuous updating of information for the commonly shared EVLM Portal in English.
4. Expert consultancy on the transnational level in some mathematical fields. !

P3	. University of West Bohemia, Czech republic www.zcu.cz University of West Bohemia was established in 1991, but the tradition of the higher education in Plzeň goes back to 1949 when the Institute of Technology was founded there. At present, the number of students of the university is more than 15000, and the number of academic staff nearly 1000. The Department of Mathematics has 88 members (8 full professors), many of them being past masters in their fields of mathematics. It participates in many research, as well as educational, projects (improving of the educational process, e-learning, computer assisted teaching, etc.). Experience and competence in the related fields: • Computer assisted teaching, using Mathematica, webMathematica, MatLab, Maple and many other specialized software products. • Creation of a wide web-based database of solved mathematical examples for undergraduate students, covering the courses provided by the department. Partner role: 1. System work and advisory assistance with server installation and the EVLM Portal maintenance 2. Administration of the webMathematica project server 3. Development of a National Centre of Mathematics with virtual National Portal on a local server of the institution that will provide expert consultancy and training for students and academic staff. 3. Continuous updating of information for the commonly shared EVLM Portal in English. 4. Expert consultancy in several mathematical fields and in webMathematica software installation on transnational level
P4	. University of Salamanca, Spain www.usal.es Universidad de Salamanca has a long tradition of engineering and mathematics studies. The total number of staff teaching is 2000 (including part and full time). The University has national and international experiences in e-learning, virtual education, pedagogical systems, computer assisted teaching and new technology resources for education. We participate in projects within the European Commission and European Union, in addition, many projects are partly or fully supported by national grant agencies. Experience and competence in relevant fields: • Computer assisted teaching by using the software package Mathematica and e-learning materials developed by the department members. • Experience in ePedagogy and evaluation, usage of computers and new technologies in pedagogical process. Partner role: 1. Development of a National Centre of Mathematics with virtual National Portal on a local server of the institution that will provide expertise consultancy and training for students and academic staff. 2. Continuous updating of information on the Spanish portal, this will be the environment and working place of the local National Centre of Mathematics at University of Salamanca available for university students and academic staff. 3. Continuous updating of information for the commonly shared EVLM Portal in English. 4. Expert consultancy on the transnational level in some mathematical fields.

P5	. ! Tulossita Ltd www.tulossita.fi Tulossilta Ltd has provided training and consulting since 1990. Our Mission is to guide our customers to find their path towards success. As co-travels on this way we organise training programmes and consultations for educational establishments and enterprises. Additionally we collaborate with ministries and local authorities for education and employment issues. Experience and competence in related fields: • Expertise has been gathered in development of training methods and systems likewise in development of training materials and programs. Another strong service package contains training in mentoring process and trainers. • Experience has been gained both in national and international projects and networks. Furthermore we organise own training programmes in these fields. Partner role: 1. Dissemination of the project results. 2. Training of clients in the National Centre in Finland. 3. Continuous updating of information for the commonly shared EVLM Portal in Finnish and Russian.

P6

University of Miskolc, Hungary
www.uni-miskolc.hu

The mission of the university is formed by a combination of major insights, commitments, values and efforts: the establishment and maintenance of an integrated HE institution that meets the standards of the age by producing well trained and highly qualified professionals, and by active participation in the scientific and social life of the nation and the world. The university is committed to continuous adjustment in the contents and structure of its academic programmes to respond to global and European developments in HE. The widespread international relations of the university have changed. Previous relationships (mainly with countries in Eastern Europe) have been transformed or, in some cases, ceased. On the other hand, broadening has taken place through the growing number of partner institutions in Western Europe in the form of joint international projects and bilateral agreements. The University of Miskolc did join the major European educational and research projects (TEMPUS, CEEPUS, SOCRATES, LEONARDO, NATO, 4th and 5th Framework Programmes, EUREKA, etc.), and the university has been participating in two other actions (LINGUA, MINERVA) of the SOCRATES programme. We will find broader opportunities of cooperation in these fields, as conditions to promote the aims in the proposed LEONARDO project are created: let us mention the possibilities offered by the Institute of Mathematics joining two departments: the Department of Analysis, and the Department of Applied Mathematics. Similarly, the North-Hungarian Regional Distance Education Centre established at the university, can offer the opportunity to involve all forms of DE, respectively to produce DE teaching materials.

Experience and competence in related fields:

- Computer assisted teaching by the use of software packages Mathematica, Maple, Mathematical MacTutor, MatLab, Derive, and organisation of Computer Algebra Summer University – University of Miskolc 2003. 2004
- International networking – as the coordinator institute of the CEEPUS Network H 127, Active Methods in Teaching Mathematics, involving 8 countries and 14 universities
- Self Made Mathematics – Support Centre for mathematically talented high school students
- Development of mathematics curriculum at technical universities (within SEFI MWG)
- Organisation of seminars and conferences at international level – SEFI 2000, JMC 1996-2002, HMTM 2004

Partner role:

1. Development of a National Centre of Mathematics with virtual National Portal on a local server of the institution that will provide expert consultancy and training for secondary school and university students and academic staff.
2. Continuous updating of information on the Hungarian portal, which will be the environment and working place of the local National Centre of Mathematics at University of Miskolc available for secondary (high) school students, university students and academic staff.
3. Continuous updating of information for the commonly shared EVLM Portal in English.
4. Expert consultancy on the transnational level in the History of Mathematics and Teaching mathematics, Computer Algebra. !

P7

University of Limerick, Ireland
www.ul.ie

Partner role:

1. Development of a National Centre of Mathematics with virtual National Portal on a local server of the institution that will provide expertise consultancy and training for students and academic staff.
2. Continuous updating of information on the Irish portal, which will be the environment and working place of the local National Centre of Mathematics at Limerick university available for university students and academic staff.
3. Continuous updating of information for the commonly shared EVLM Portal in English.
4. Expert consultancy on the transnational level in some mathematical fields

P8

Slovak Society for Geometry and Graphics
www.ssgg.sk

Slovak Society for Geometry and Graphics is a an official institution to inform on organisation of different scientific events related to sciences, geometry and computer graphics, providing a platform for donations and sponsorship of scientists in this field (especially young people), in order to stimulate scientific development in these disciplines, and to enhance the quality of mathematics, geometry and graphics education of engineers and designers particularly. One of the activities of the society is connected to the publication of scientific papers. All other activities are dealing with spreading the knowledge of geometry and graphics, via discussion forum on Internet, software market, workshops, internet courses and chats, etc. The objective of the society is to foster international collaboration and stimulate scientific research and teaching methodology in the fields of mathematics, geometry and computer graphics. The society is a non-profit national scientific professional organization with its registered administrative office where the President resides.

Experience and competence in related fields:

- Dissemination of in formation in Slovakia within the community of Slovak researchers through the official portal of the society
- Reproduction of relevant materials in printed or electronic form, e.g. production of ICT media, as CD, xml/ html semantic web pages, etc.
- There is considerable expertise in the production of virtual databases and semantic web pages using the most innovative technics, e.g. MathML coding of mathematical formulas in electronic learning materials.

Partner role:

1. Dissemination of the project results, print of materials, production of CDs.
2. Training of clients in the National Centre of Mathematics in Slovakia.
3. Continuous updating of information for the commonly shared EVLM Portal in English.
4. Expert consultancy on the transnational level in some specific mathematical fields.

P9

School of Mathematical and Information Sciences, Coventry University, United Kingdom
www.mis.coventry.ac.uk

The School has a long-established record of excellent mathematics support, particularly for students of engineering. The University is one of the country's leaders in the provision of institution wide support in mathematics and statistics. In collaboration with Loughborough University it has recently been designated as a Centre of Excellence for Teaching and Learning in this field. Staff from the School have participated in several prestigious, nationally funded, teaching and learning projects. Within the mathematics subject group there is considerable expertise in control theory and applications, magento-hydrodynamics and numerical methods.

Experience and competence in related fields:

- The School's Mathematics Support Centre is regarded as a national leader in the provision of personal support for students learning mathematics
- Staff from the School have key roles in a national initiatives including mathcentre, a virtual national mathematics learning support centre, and mathtutor, a project to develop a wide range of learning resources to assist students in the transition from school to university mathematics.
- There is considerable expertise in the integration of industry standard software, such as Excel, Matlab and Maple, into learning materials for students.

Partner role:

1. To provide interim monitoring and evaluation of the project progress and valorisation strategies.
2. To share good practice, derived from experience with the mathcentre project to EVLM partners.
3. To monitor the contents of the information on the project webpage and on the EVLM Portal in English as a common environment of the Virtual Mathcentres framework.

2. Please present the partnership as a whole, and describe its structure, functioning and experience in transnational co-operation.

.

The partnership brings together a number of institutions with a range of strengths which enable them to fulfil their specific individual roles and also to contribute to the common aims of the EVLM project. The project team was selected with the aim of creating a strong and stable partnership. The contributing institutions include some members who have worked together for many years on projects at a European level (for example, through the SEFI Mathematics Working Group) and also new members who are enthusiastic to participate in the aims of this project. This mix of established and new collaborators enables existing strengths to be utilised whilst at the same time allowing new ideas to influence the direction of development. The coordinating institution has been involved in several projects dealing with development of e-learning materials for mathematics at the most advanced level and with the usage of the most innovative ways of presenting mathematical contents in e-learning documents, modules and other materials for education of mathematics. The interim evaluator of the project progress is experienced in the running of a virtual national mathematics learning centre, supporting students at the transition from secondary schools to university and therefore this partner can valuably influence and enhance the results of the project. One partner has considerable experience in managing web servers. All partners are experienced in computer aided teaching of mathematics; they are committed to improving the current situation, where mathematics is taught mainly in a traditional way of lecturing and paper-pencil hand calculations without utilising available computer technology. At the National Centres of Mathematics, on-going training of students and teachers in how to use, share and develop electronic study materials will be provided. Ways of combining the new methods of ICT with the traditional ways of teaching and utilising printed resources of educational materials at all partner institutions at the most advantageous level will be investigated. Cooperation within the European Virtual Laboratory of Mathematics, consisting of the framework of the National Centres of Mathematics through the National Portals, and centrally at the EVLM Portal, will enable the promotion of mathematics in the European research area. Common efforts by staff at the partner institutions will support the expert consultancy in different mathematical fields at transnational level and in the most advanced way.

During the span of the project, dissemination of the EVLM idea will be carried on (in accordance with the valorisation plan) by all project partners. Any other interested party will be invited to participate in creating the European virtual network of Maths centres. Negotiations are on-going with universities in some other European countries (in Italy, Finland, France, Germany, Norway, and Slovenia). The idea is to extend the project to as many countries as possible.

End of the pre-proposal

E. ORGANISATION AND MANAGEMENT OF THE PROJECT

E.1. WORK PROGRAMME

Please describe your work programme by sub-dividing it into work-packages. For each work-package please describe:

- the aims,
- the start and finish dates and overall duration,
- the total number of staff days (broken down by categories - see table E.2.2),
- the role and the tasks of each partner involved,
- the role and the tasks of sub-contractors, if any,
- the working methods and techniques,
- the expected outcomes/results of the work package,
- (for "Reference material" proposals only): the fields of analysis, methods (including samples, size and its composition) techniques and tools to be used in particular for international comparison.

The work programme is required to include explicitly a detailed valorisation plan[9], indicating:

- the timetable,
- all activities planned during and after the end of the project in order to make results properly disseminated and exploited, including activities involving the target group(s), representatives of the target sector(s) the potential users and/or other groups (political decision makers, professional/sectoral organisations, social partners, media …),
- the human and financial resources assigned to valorisation activities,
- any commercialisation, if foreseen.

The work programme must also include a quality management plan: procedures, criteria and resources for monitoring and evaluation of the progress of the project, and for internal and/or external evaluation - including quality control and testing, if applicable - of the interim and final results in comparison with the needs of the target group(s) and sector(s) and of the potential users. Please explain, in particular, how the target group(s) and/or potential users will be involved in these activities.

For the sake of clarity, you may wish to add diagrams, additional explications and tables as appropriate.

.

Work programme consists of:

a) description of 15 work-packages that are necessary to reach the projects aims,

b) plan of meetings (+Table of travel and subsistence costs in annexes)

c) valorisation plan

d) SWOT analysis

e) quality management plan

f) calendar of deliverables

g) list of activities and responsible partners

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9 See specific guidelines for the valorisation plan.

Work-package	Timetable	Duration in month	Staff days				Respon-sible Partners	Results Outcomes
			Ma-na-gers	Re-sear-chers	tech-ni-cians	Tea-chers		
WP1	X – XI 2006	2	20	125	20	0	P1, P9	Organisation and management planning Competence enhancement Project website design
WP2	X – XII 2006	3	10	165	10	0	all	EVLM portal design
WP3	I – III 2007	3	15	200	10	0	P1	Database system development
WP4	IV–VI 2007	3	15	115	100	0	P1, P3	Installation of servers
WP5	VI–VII 2007	2	10	90	60	0	P1, P3, P8,P9	Testing the functionality
WP6	VII–IX 2007	3	9	70	20	0	P1 - P8	Populating the Central / National Databases and their updates
WP7	X 2007	1	5	70	20	0	P1 - P7	Launching the National centres of Mathematics
WP8	I–IX 2007	9	9	160	12	0	P1, P8, P9	Translations Interim evaluation Dissemination
WP9	X – XII 2007	3	6	50	70	192	P1 - P7	Training tutorials for teachers
WP10	X– XII 2007	3	6	170	10	0	P1 - P7	Teacher's guide - CD
WP11	X 2007 – IX 2008	12	12	6	80	480	P1 - P7	Assistance to students, expert consultancy
WP12	I – III 2008	3	3	180	10	0	P1 – P7	Student's book - CD
WP13	X 2006 - IX 2008	12	12	80	20	0	P1 – P7	Database updates
WP14	VI– IX 2008	6	13	40	24.5	0	all	Valorisation results
WP15	IX 2008	1	15	20	10	0	P1, P7	Overall evaluation
			160	1541	476.5	672		

DETAIL DESCRIPTION OF WORK-PACKAGES

WORK-PACKAGE 1

Organisation and management planning, competence and responsibility enhancement of partners

Duration: 2 months — Responsible: P1 – coordinator, P9

Timetable: X – XI, 2006 — Involved: all partners

1. Creating a functional network cooperation of EVLM:

1.1. Technical support – specialist servers for the Central Portal and National Centres, fast internet, etc. (i.e. platforms, minimal requirements, use of the existing technical support, need to buy some elements, etc. ... for constructing the entire network)

1.2. Software support – including xml / MathML editors, webMathematica, Matlab, Maple (open source software solutions, search for existing and new ICT)

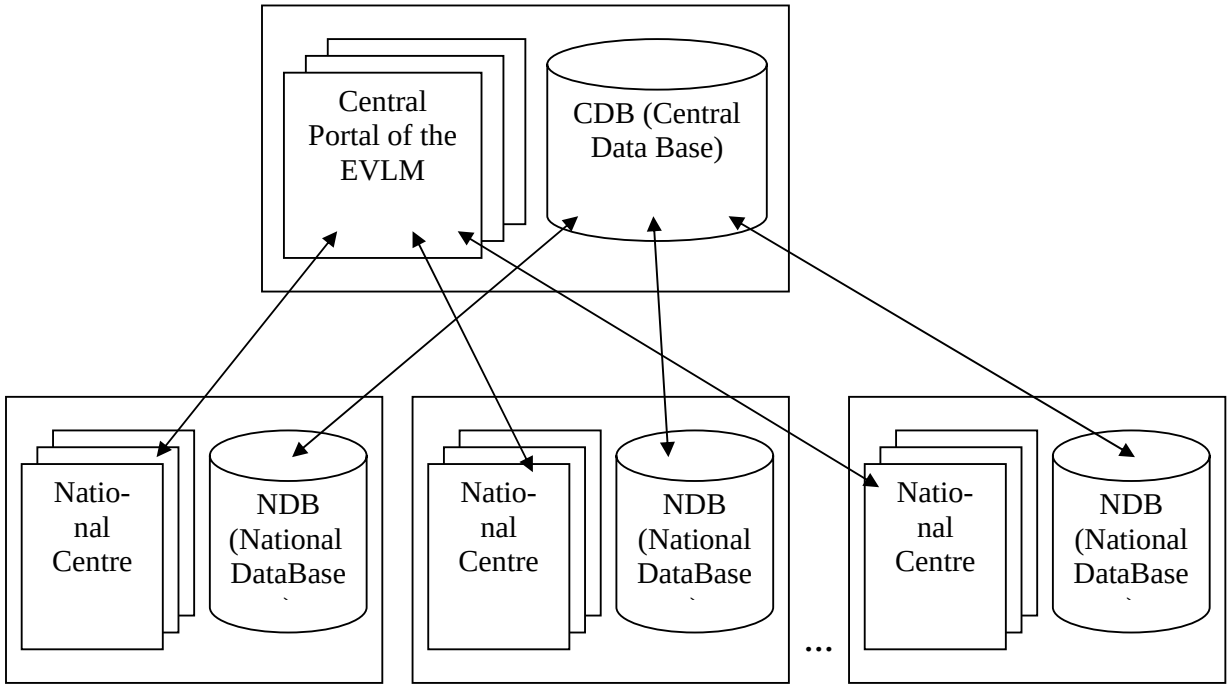
1.3. Data Base support

1.4. Security system

1.5. Establishment of the communication rules, priorities and competences in the EVLM net

At the partner's meeting there will be developed for each target group addressed by the project, and contain explicit specifications of actions and initiatives taken by the different actors within the partnership.

Architecture of the EVLM (two-level architecture, simple, but more functional). All data will be stored in at least two DB- CDB and NDB. Some security system must be assured, too.



2. Design of the project website

Provisional webpage of the EVLM project is availale on the address – www.sjf.stuba.sk/EVLM/index.htm

2.1. Contents (Project – duration, partners, aims, target groups, activities, achievements, results, …)

2.2. Links (EC websites, Leonardo website, current related EU projects, partner's websites)

2.3. Structure and hierarchies (tables, headlines, illustrations, …)

2.4. Navigation (easy, logical and comprehensive, …)

2.5. Overall layout and graphical design

1st meeting of partners – Kick-off meeting — coordinator P1, SK (Bratislava), October 2006

PROGRAMME: Organisation and management planning, proposal of the Project Dissemination, Promotion and Valorisation Plan, competence enhancement

Project website design

WORK-PACKAGE 2

EVLM portal design
Duration: 3 months — Responsible: P1 - P9
Timetable: X – XII, 2006 — Involved: all partners

Responsible partners are expected to contribute to the EVLM portal design and development.
Central portal will be developed under the responsibility of coordinator P1 and partners P8, P9, National portals are completely under the responsibility of partners P1, P2, P3, P4, P5, P6, P7.
EVLM portal structure

1. Contents (source information on – aims, partner Maths Centres, target groups, activities, databases, available open access resources, …)
2. Links (National portals of Maths centres, relevant Maths web-pages, project websites, websites of other related EU projects, partner institution's websites, …)
3. Database access (security system, password privileges, restricted areas …)
4. Internal communication possibilities (chats, e-forums for teachers, students, guests)
5. Navigation details (layers, depth, …)
6. Overall layout and graphical design (colours, headlines, illustrations, …)

WORK-PACKAGE 3

Database system development
Duration: 3 months — Responsible: P1, P8
Timetable: I – III, 2007 — Involved: all partners

Tasks related to the Database system development:
- Choice of the relevant database software solution (e.g. open access soft.: Php and MyQL)
- Database technology and interfacing
- Database security system
- Access priorities
- Creating a common concept of the project virtual DB,
  i.e. the virtual tree of the source materials - math courses, tests, books, e-learning materials and other learning materials
- Determining the roles of the partners in the process of database population and update.

2nd meeting of partners: Database meeting – brainstorming — partner P7, UK (Coventry), January 2007

PROGRAMME: Discussion about the database contents
Visit to the working Math centre at Coventry University – good practise example
Brainstorming and EVLM functionality planning

WORK-PACKAGE 4

Installations of servers
Duration: 3 months — Responsible: P1, P3
Timetable: IV – VI, 2007 — Involved: all partners

Central EVLM servers (www, ftp and database server) – at the coordinator institution P1
installed and maintained by partner P1
National servers –at the partner's National centres of Mathematics installed by partners P1, P2, P3, P4, P5, P6, P7
webMathematica server – at the coordinator institution P1 installed and maintained by partner P3

WORK-PACKAGE 5

Testing the functionality
Duration: 2 months — Responsible: P1, P3, P8, P9
Timetable: VI – VII, 2007 — Involved: all partners

EVLM portal functionality testing, start of the central database populating process.
Partner P9 will be responsible for the analyses of the Testing phase.
All partners will contribute to the optimisation of the portal functionality and security by their comments, suggestions, solutions of possible problems and conflicts.
Database Operational manual will be written and produced in cooperation of responsible partners.

WORK-PACKAGE 6

Central and National Database update
Duration: 3 months — Responsible: P1 - P7
Timetable: VII– IX, 2007 — Involved: all partners

All partners are involved in the process of populating the databases on both central and respective national levels and their continuous update. National databases are updated under the responsibility of the National centres of Mathematics, partners are responsible for

1. creating mathematical resources for the National DBs
2. maintaining the project virtual National DBs
3. installing these materials into the central DB of the EVLM
4. preparing new materials, according to the project aims
5. continuous update of the National DBs.

Coordinator will visit one of the relevant evaluation panels in Brussels.

WORK-PACKAGE 7

Launching the National centres
Duration: 1 month — Responsible: P1 – P7
Timetable: X, 2007 — Involved: all partners

All National centres of Mathematics will start their work with the resources available in the central and National databases.
Assistance to students, teachers, any interested individuals or groups.
Consultancy on all levels, in all available forms, transfer of consultancy requests to responsible partners, archiving the consultancy item – topics, update of the consultancy list.
Feedback from the target groups –questionnaire, electronic form, e-forum

WORK-PACKAGE 8

Translations, Dissemination, Interim evaluation
Duration: 9 months — Responsible: P1, P8, P9
Timetable: I – IX, 2007 — Involved: all partners

Translation + Adapting of the available information resources in partner universities
(e-courses, e-books, e-tests, semantic classification, internal links, etc.)
Dissemination of the project results:

- in a quarterly mathematical bulletin on the EVLM web-site
- at national and international conferences, through the newsletters of professional bodies,
- production and delivery of a booklets to all registered and potential users as universities, societies or

individuals, interested in mathematical consultancy
- providing leaflets with essential information on the EVLM scope, resources, activities, etc.…

Dissemination materials will be developed by partners and produced at National centres of Mathematics, in English or in national languages according to the operative needs and demands.
At the partner's meeting there will be produced the detailed action plan, which will provide an action-oriented and target group-specific Project Dissemination, Promotion and Valorisation Plan developed for each target group addressed by the project, and contain explicit specifications of actions and initiatives taken by the different actors within the partnership.
Internal evaluator – Partner P9 will provide Interim evaluation of the work (results and activities) for the first year of the project.

3rd meeting of partners: Dissemination meeting — partner P4, ES (Salamanca), June 2007

PROGRAMME: Discussion about the available e-learning materials
Dissemination strategies – national translations, reports on conferences, leaflets and posters, web forum
Valorisation keynotes and valorisation plan
Interim reports

WORK-PACKAGE 9

Training tutorials for teachers
Duration: 3 months — Responsible: P1 – P7
Timetable: X – XII, 2007 — Involved: all partners

Specialized consultancy
Training of teachers - using ICT in education, for authorship of e-learning materials
Enhancement of ICT competences
Analysis of the feedback from trained teachers

WORK-PACKAGE 10

Teacher' s guide - CD production
Duration: 3 months — Responsible: P1 – P7
Timetable: X – XII, 2007 — Involved: all partners

Teacher's guide book on usage of specialised html, xml, MathML editors, dynamical web pages with maths e-contents and on-line mathematical engines, prepared by National centres of Mathematics in national languages, with possible translations to English.
Production of CD portable medium – estimated number: 60 pieces each version

4th meeting of partners: Workshop I — partner P2, BG (Plovdiv), October 2007
PROGRAMME: Preparation of teacher's guide book

WORK-PACKAGE 11

Assistance to students, expert consultancy
Duration: 12 months — Responsible: P1 – P7
Timetable: X 2007 – IX 2008 — Involved: all partners

Open activities of the National centres of Mathematic for students:
tutorial consultancy, or expert consultancy on different mathematical topics,
database access to listed electronic learning materials with introductory instructions for usage,
list of reference materials – books, journals, proceedings of conferences, PhD. Theses, etc…,
personal or remote access,
different electronic forms of queries to EVLM, on-line services, e-mails, discussion groups, ...

Feedback from assisted students, researchers, targeted individuals or groups.
Coordinator will visit one of the relevant evaluation panels in Brussels.

WORK-PACKAGE 12

Student's work book – CD production
Duration: 3 months — Responsible: P1 – P8
Timetable: I – III, 2008 — Involved: all partners

Student's workbook preparation, with included instructions on how to use most popular mathematical computer algebras, on-line webMathematica calculation centre brief manual, solved problems from selected mathematical topics, guides and help ideas useful for work in EVLM Centre of Mathematics. Production of CD portable medium – estimated number: 200 pieces each version

5th meeting of partners: Workshop II — partner 6 ER (Limerick), March 2008
PROGRAMME: Preparation of student's work book

WORK-PACKAGE 13

Database updates
Duration: 12 months — Responsible: P1 – P7
Timetable: X 2007 – IX, 2008 — Involved: all partners

Continuous update and maintenance of the databases, including consultancy requests sheets, list of consultancy events, new developed materials, translated relevant resources, student contributions.

6th meeting of partners: Valorisation-Evaluation meeting — partner 5 HU (Miskolc), June 2008
PROGRAMME: Project Dissemination, Promotion and Valorisation Plan results
Interim partner's reports
Interim evaluation reports

WORK-PACKAGE 14

EVLM valorisation
Duration: 6 months — Responsible: P1 – P9
Timetable: IV – IX, 2008 — Involved: all partners

Maintenance of the EVLM consultancy activities:

1. Providing different environments for specialized consultancy in mathematical topics: for instance - web-pages in the EVLM sites, e-forums for teachers, students
2. Providing expert consultancy for target groups or individuals in classified mathematical topics according to the virtual tree of the DB
3. Dissemination of the project results:
   - in a quarterly mathematical bulletin on the EVLM web-site,
   - sending announcements to all registered and potential universities, societies or individuals, interested in mathematical consultancy …
4. Creating special link-subsystem in order to establish links with the project target groups and initializing their needs in mathematical topics, for better consultancy ... different electronic forms of queries to EVLM, on-line services, e-mails.....
5. Declare the open character of the EVLM with some kind of Agreement and establish useful links with other European universities and institutions for freely exchange of the mathematical knowledge, applications of new ICT in mathematics, and enlargement of the EVLM members.

WORK-PACKAGE 15

Overall Evaluation
Duration: 1 months — Responsible: P1, P7

Timetable: IX, 2008 Involved: all partners

Coordinator and internal evaluator elaborate the final report of the project work progress and results, after the overall testing and evaluation by partners, with respect to the internal evaluations and intermediate report from coordinator, and including the feedback from the targeted groups and feedback analyses.

7th meeting of partners: Last meeting partner P5, FI (Tampere), September 2008

PROGRAMME: Overall evaluation of the project work and results

Distribution of Work-packages among partners

P1	P2	P3	P4	P5	P6	P7	P8	P9
WP1 -7 WP8 – 15	WP2, WP6, WP7 WP9 - 14	WP2, WP4 – 7, WP9 – 14	WP2, WP6, WP 7, WP9 - 14	WP2, WP6, WP7, WP9 - 14	WP2, WP6, WP7 WP9 - 14	WP2, WP6, WP7 WP9 - 14	WP2, WP5, WP8 WP10 WP 12 WP 14	WP1, WP2, WP5, WP8, WP14, WP15

b) Plan of meetings

1. Kick-off meeting — coordinator P1, Work-package 1, SK (Bratislava), October 2006

PROGRAMME: Organisation and management planning
Competence enhancement
Project website design

2. Database meeting – brainstorming — partner P9, Work-package 3, UK (Coventry), January 2007

PROGRAMME: Discussion about the database contents
Visit to the working Math centre at Coventry University
Brainstorming and EVLM functionality planning

3. Dissemination meeting — partner P4, Work-package 8, ES (Salamanca), June 2007

PROGRAMME: Discussion about the available e-learning materials
Dissemination strategies – national translations, reports on conferences, leaflets and posters, web forum
Valorisation keynotes and valorisation strategic plan
Interim reports

4. Workshop I — partner P2, Work-package 10, BG (Plovdiv), October 2007

PROGRAMME: Preparation of teacher‘s guide book

5. Workshop II — partner P7, Work-package 12, ER (Limerick), March 2008

PROGRAMME: Preparation of student‘s book

6. Valorisation-Evaluation meeting — partner P6, Work-package 13, HU (Miskolc), June 2008

PROGRAMME: Project Dissemination, Promotion and Valorisation Plan results
Interim partner’s reports, interim evaluation reports

7. Last meeting — partner P5, Work-package 15, FI (Tampere), September 2008

PROGRAMME: Overall evaluation of the project work and results
Planning of the further activities
EVLM functionality and extension

c) Valorisation plan

At the first Kick-off meeting, the proposal of the Project Dissemination, Promotion and Valorisation Plan will be prepared, reflecting the planned valorisation costs of about 53 000,- Euros, which is about 13.25% of the project budget. Plan will be continually improved with respect to the feedback received from the targeted groups via questionnaires, which will be thoroughly analysed.

Detailed activities and responsibility of all partners will be discussed and evaluated at the Dissemination meeting – WP 8, where partners P8 and P9 will be responsible for the adopted dissemination strategy and its realisation. There will be developed an in-depth strategy with detailed description of tasks for each target group addressed by the project, and containing explicit specifications of actions and initiatives taken by the different actors within the partnership.

Dissemination strategies

Dissemination of information on availability of the EVLM – portal will be carried through all possible means of communication (posters and leaflets on professional meetings, seminars and conferences, information on the www, EVLM portal announcements, a quarterly mathematical bulletin on the EVLM portal) and on all levels of partner´s contacts.

The major focus will be put on the enlargement of the partnership – more National centres of Mathematics in other EU countries will be invited and encouraged.

To declare the open character of the EVLM, an Agreement on establishment of useful links among all European universities and educational institutions for free exchange of the mathematical knowledge, applications of new ICT in mathematics, and enlargement of the members of EVLM will be suggested and delivered for acknowledgement. All major institutions will be asked to sign the document and become a user/partner of the available e-learning educational materials. This will lead to the establishment of links to the EVLM portal on the websites of the cooperating universities and all other interested party.

Reports and lectures at national and international conferences and seminars on maths education and new trends in teaching mathematics will be presented by separate partners, see Annex 5.

Valorisation strategies

Reports on all cases of student's assistance and expert consultancy on request, their presentation on the websites, availability in the database.

Presentations of the Student's workbook-CD with included instructions on how to use most popular mathematical computer algebras, on-line webMathematica calculation centre brief manual, solved problems from selected mathematical topics, guides and help ideas useful for work in EVLM Centre of MathematicsCD (Workpackage12)

Organisation of teacher's workshops and tutorials on development of electronic educational materials open for staff from the partner institutions but also to staff from other national universities and, where possible, to staff from universities in other countries as well. (Workpackage 11)

Presentation of Teacher's guide book-CD with examples on usage of specialised html, xml, MathML editors, dynamical web pages with maths e-contents and on-line mathematical engines, prepared by National centres of Mathematics in national languages, with possible translations to English. (Workpackage 10)

Gathering feedback from targeted groups (university students, teachers and scientists) in different ways – questionnaires, opinion polls, public discussions, open doors activities, information meetings.

Thorough analysis of the needs and interests of separate targeted groups and due adoption of services provided.

A systematic monitoring of the project progress and work during the entire project.

Maintenance of the EVLM

Based on the feedback gathered from the targeted groups a demand on maintaining the created EVLM environment will be addressed to the respective institution authorities supported by the report on achievements and results of the project. There is expected an overall interest in maintaining the suggested Maths consultancy services, due to the general lack of any free-of-charge activities of this kind, because of their extra demands on time, and on a high quality, knowledge and experience in both, mathematics and pedagogy, in particular.

d) SWOT analysis

STRENGTHS	WEAKNESSES
▪ Life-long learning for teachers, competence improvements and enhancement in ITC skills ▪ Special skill support in the teacher's education – coding of Mathematics on the web, coding of dynamic online calculations (MathMl and XML standards) ▪ EVLM will be one of the first European Mathematical portals using dynamic mathematical calculation engine in the web environment (webMathematica) ▪ Sustainability of the project results (also after the project grant period) ▪ Support from the partner institutions ▪ Transfer and exchange of mathematical knowledge between European partner countries ▪ Vocational training in special skills and knowledge – ITC competence, mathematics, web communication, usage of most advanced techniques and current information ▪ Improvement in ICT competences of teachers, scientists and researchers as target groups and students, graduates and other final users ▪ Support to the „blended solution" – distributed learning method – combination of classical and computer based education ▪ Development of source learning materials for the Distance learning courses in Mathematics ▪ Users will only need access to web browsers to use EVLM facilities	▪ EVLM portal could be lost among the numerous maths/contents websites ▪ Different qualitative level of the ready educational materials with/without the e-based educational resources, at different partner institutions, and in different forms ▪ More time-demanding preparation of the e-learning materials, requiring too technical skills in computer competences ▪ Too different and wide scope of expert consultancy requests in Maths applications ▪ Too many demands on various EVLM activities

OPPORTUNITIES	THREATS
▪ To enhance competences in ICT usage and utilisation (for both teachers and students), which might be applied also in other relevant sectors, better adaptability in the educational sector, in the European research area, and at the European labour market ▪ To follow new trends in the society development towards the developed ICT community ▪ To increase overall level of mathematical knowledge and interest in mathematics among university students through EVLM ▪ To increase and equalise educational standards in Mathematics at the European universities, and to create and test standards of quality e-learning materials with basic Mathematical contents ▪ To develop a well-organised European database of mathematical resources available for the list of the most frequent keywords ▪ To illustrate applicability of mathematical solutions and importance of Maths itself ▪ To foster the basic knowledge in national language with available resources in English ▪ To provide equal opportunities to all potential users, as private individuals, home self-learners interested in self-education, for persons who may not normally engage with formal education including disabled people and people perceiving discrimination due to social and gender stereotypes. ▪ To include a gender dimension through the data about the gender of the users of e-learning materials	▪ Enlargement of the gap between skills and competencies of students enjoying availability of ICT facilities at the advanced universities and students facing the lack of the most advanced equipment in the developing and poor countries ▪ Appearance of the elitist education to separate group of "fortunate" students able to utilise EVLM ▪ Decrease in self-education efforts, relying on existing learning materials, tutorship, consultancy, instant help, etc. in the EVLM databases ▪ Over-usage /mis-usage of EVLM, electronic learning materials, computers ▪ Distribution of Maths teachers into 2 separate groups – progressive individuals (using advance and innovative learning methods and materials) active in EVLM activities, and traditionalists (using classical educational forms and methods) refusing EVLM support and resources

How to avoid risks:
- blended solution, combination of e-learning, traditional, self-educational, or any other attractive educational methods (individual approach in the National Centres, privacy) for synergetic effect
- user-friendly and encouraging atmosphere and attitude in the Centres of Maths
- quick respond and easy access to information through ICT available free in the Centres of Maths
- quality consultancy in the Centres of Maths ensured by involved professionals
- personal approach and involvement on both sides – tutors and students
- usage of various pedagogical methods (pedagogical skill of the staff in the Centres of Maths)
- encouragement and tactful help, open doors for any interested party without any constrains
- good dissemination strategy, availability of information and help on particular problems
- creating appealing picture of maths to young people
- learning by playing and investigation

e) Quality management plan

Virtual cooperation organisation structure

Operational group – Partners P1, P3, P8, P9

Partners are responsible for the operational aspects, installation of servers, database design, implementation and maintenance. Coordinator P1 and internal evaluator P9 are responsible for the EVLM Central portal contents and project webpage.

Production group - Partners P1, P2, P3, P4, P5, P6, P7

Partners are responsible for the quality, contents and update of the respective national portals and national versions of project websites, functionality of the National centres of Mathematics and project advancement will be continuously monitored by using virtual meetings once a month, which will be hosted and stored in the Restricted area of the EVLM Portal accessible for the project team exclusively.

Internal evaluation will be carried by the partner P9, who will deliver 3 interim evaluation reports during the project run. Final evaluation report will be discussed with all partners.

Interim evaluator - partner P9 will analyse feedback collections from trained teachers and students prepared by partners in National centres of Mathematics.

Coordinator will deliver one Overall report after first 12 month of the team work; final report will be written on the base of interim and evaluation reports and prepared in cooperation of partner P9 and coordinator P1.

Responsibility table

Partner	Tasks, item, meetings, activities	Work-packages	Deliverables
Partner 1	Project homepage in English EVLM Central portal Database development Server installations Testing the overall EVLM functionality Database populating and update Launching the National centre Interim evaluation, dissemination Teacher' s training Teacher' s guide book Student's assistance Student's book Database updates EVLM valorisation Overall evaluation Meeting - 1	WP1 WP2 WP3 WP4 WP5 WP6 WP7 WP8 WP9 WP10 WP11 WP12 WP13 WP14 WP15	5 Interim reports 2 CDs 2 Feedback collections 1 Overall report Database Operational manual Final report (12)
Partner 2	Project homepage national version EVLM national portal Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates Meeting 4	WP2 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)

Partner 3	Project homepage national version EVLM national portal Database development webMathematica server installation and maintenance Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates	WP2 WP4 WP5 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections Database Operational manual (10)
Partner 4	Project homepage national version EVLM national portal Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates Meeting 3	WP2 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)
Partner 5	Project homepage national version EVLM national portal Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates Meeting 7	WP2 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)
Partner 6	Project homepage national version EVLM national portal Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates Meeting 6	WP2 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)

Partner 7	Project homepage national version EVLM national portal Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates Meeting 5	WP2 WP6 WP7 WP9 WP10 WP11 WP12 WP13 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)
Partner 8	Server installation (national) Testing the functionality - National portal Database populating and update Launching the National centre Teacher' s training Teacher' s guide book Student's assistance Student's work book Database updates	WP2 WP3 WP5 WP8 WP12 WP14	5 Interim reports 2 CDs 2 Feedback collections (9)
Partner 9	Project homepage in English EVLM Central portal Testing the overall functionality Interim evaluation, dissemination Overall evaluation Meeting 2	WP1 WP2 WP5 WP8 WP14 WP15	5 Interim reports 3 Evaluation reports Database Operational manual 2 Feedback analyses Final report (12)

Quality management plan phases:

1. Design phase
2. Implementation phase
3. Valorisation phase
4. Evaluation phase

Design phase quality criteria

Innovation – e-learning methods in Maths, distance learning facilities, blended solution, on-line calculation engines
Transnational impact – European dimension
Relevance – target groups expectations, needs and objectives
Attractiveness – usage of the most innovative communication tools
Transferability – flexibility and adaptability of the main idea to other subjects
User-friendly approach of provided services

Implementation phase quality criteria

Technology used – innovative approach, current most advanced utilities
Presentation – attractive design of portals and project homepages
Accessibility – easy navigation, search, orientation

Valorisation phase quality criteria

Coherence of the provided services to the stated and accepted objectives
Objective achievements with respect to the product's quality, project results and feedback outcomes
Pertinence foreseen on the capacity of incidence of results/activities with respect to the estimated planned interest
Different dissemination strategies – presentations, posters, leaflets, booklets, CDs study materials, manual proportionality of their utilisation and effectiveness
Feedback facilities – chats, e-forum, e-mails, questionnaires, activity reviews, personal comments,… and their value with respect to the received information on real impact of the project results.

Evaluation phase quality criteria

Interim evaluation – internal reports, evaluation reports

External evaluation – feedback from the target groups, potential users (EU Uni, SEFI MWG, SSGG, other institutions), feedback analyses

f) Calendar of deliverables

PROJECT MONTH	DATE	TYPE	PARTNERS
6th	March 2007	Interim reports 1	P1 – P9
9th	June 2007	Interim reports 2	P1 – P9
10th	July 2007	Database Operational manual	P1, P3, P8, P9
12th	September 2007	Interim reports 3	P1 – P9
		Evaluation report 1	P9
13th	October 2007	Overall report 1	P1
15th	December 2007	Teacher's guide book CD	P1 – P8
16th	January 2008	Feedback collection from trained teachers	P1 – P7
18th	March 2008	Interim reports 4	P1 – P9
		Evaluation report 2	P9
		Student's workbook CD	P1 – P8
20th	May 2008	Feedback analysis 1	P9
21st	June 2008	Interim reports 5	P1 – P9
		Feedback collection from students	P1 – P7
22nd	July 2008	Evaluation report 3	P9
23rd	August 2008	Feedback analysis 2	P9
		Final report	P1, P9

g) List of activities and responsible partners

1. Project website design (national versions) — P1 (P2 – P9)
2. EVLM portal design, national portals — P1 – P7
3. Development of the database system — P1, P8
4. Installations of Servers – national, central, webMathematica — P1, P3
5. To populate databases — P1 – P7
6. Database Operational manual production — P1, P3, P8, P9
7. To test functionality of the EVLM network — all
8. Launching of the National Centres of Mathematics — P1 – P7
9. Creating mathematical resources for the Databases — P1 – P7
10. Continuous update and maintenance of the Databases — all
11. Providing expert consultancy for target groups or individuals — P1 – P7
12. Teacher's guide book CD production — P1 – P8
13. Student's work book CD production — P1 – P8
14. Feedback analysis and valorisation plan — P9
15. Evaluation of the project results — P1, P9
16. Dissemination of the project results - leaflets — all

E.2. FINANCIAL PLAN

For filling out section E2, please refer to the Administrative and Financial Handbook concerning Pilot projects (including Thematic actions), Language competences, Transnational networks and Reference material.

NB: You must use the four tables below in the given format.

E.2.1 ESTIMATED EXPENDITURES BY WORK-PACKAGE AND TYPE OF COSTS

It is recommended to foresee one specific work package for the valorisation strategy of the project (dissemination and exploitation activities)

All figures in Euro

Work Package	Staff	Operational	Subcontracting	Total
I	16 000	9 000	0	25 000
II	15 000	2 000	0	17 000
III	24 000	12 000	0	36 000
IV	20 000	50 000	0	70 000
V	12 000	8 000	0	20 000
VI	10 000	3 000	0	13 000
VII	8 000	2 000	0	10 000
VIII	20 000	19 203	0	39 203
IX	20 000	4 000	0	24 000
X	20 000	10 000	0	30 000
XI	22 418	4 000	0	26 418
XII	20 000	10 000	0	30 000
XIII	11 000	7 000	0	18 000
XIV	8 000	5 000	0	13 000
XV	5 000	3 000	0	8 000
Total	231 418	148 203	0	379 621

Distribution of costs and staff days to work-packages

Dissemination and Valorisation Work-packages VIII and XIV - planned costs are 53 000 (13.25% of the project budget)

WP	Staff costs	Managers 100 days	Researchers 1 164 days	Teachers 980 days	Technicians 474 days	Admin. 80 days	Operational costs	Sub-cont.	Total costs
I	16 000	10	100		15	20	9 000	0	25 000
II	15 000	5	80		10		2 000	0	17 000
III	24 000	10	190		10		12 000	0	36 000
IV	20 000	10	70		100		50 000	0	70 000
V	12 000	5	50		49		8 000	0	20 000
VI	10 000	5	50		20		3 000	0	13 000
VII	8 000	2	50		15		2 000	0	10 000
VIII	20 000	7	100		20	20	19 203	0	39 203
IX	20 000	2	50	490	50		4 000	0	24 000
X	20 000	2	144		20		10 000	0	30 000
XI	22 418	10	10	490	100		4 000	0	26 418
XII	20 000	2	150		20		10 000	0	30 000
XIII	11 000	10	60		15		7 000	0	18 000
XIV	8 000	10	40		20	20	5 000	0	13 000
XV	5 000	10	20		10	20	3 000	0	8 000
Total	231 418	7 000	134 440	60 938	25 840	3 200	148 203	0	379 621

E.2.2 ESTIMATED STAFF NEEDS AND COST BY PARTNER

After completing this table, please copy total staff costs onto first row of table E.2.3 below

All costs in Euro	Total			P1 Slovak University of Technology, SK			P2 Univesity of Plovdiv, BG			P3 University of West Bohemia, CZ			P4 Univesity of Salamanca, ES		
Staff by category:	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)
1. Managers	100			100	70	7 000	0	0	0	0	0	0	0	0	0
2. Researchers	1 164			189	60	11 340	340	30	10 200	180	80	14 400	100	220	22 000
3. Teachers/trainers	980			204,5	55	11 302,5	200	30	6 000	199,5	60	11 970	0	0	0
4. Technical	474			0	0	0	200	20	4 000	14	45	630	31	160	4 960
5. Administrative	80			0	0	0	0	0	0	0	0	0	0	0	0
Total	2 798		231 432,5	493,5		29 642,5	740		20 200	393,5		27 000	131		26 960

[10] Indicate the average cost per day.

All costs in Euro

Staff by category:	P5 Tillossilos ltd., FI			P6 Univesity of Miskolc, HU			P7 University of Limerick, IE			P8 Slovak Society for Geometry and Graphics, SK			P9 Coventry University, UK		
	Total number of days (a)	Cost per day[11] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)	Total number of days (a)	Cost per day[10] (b)	Total staff cost (a*b)
6. Managers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7. Researchers	80	200	16 000	135	100	13 500	90	300	27 000	0	0	0	50	400	20 000
8. Teachers/trainers	46	180	8 280	150	90	13 500	0	0	0	180	55	9 900	0	0	0
9. Technical	0	0	0	0	0	0	0	0	0	200	45	9 000	29	250	7 250
10. Administrative	0	0	0	0	0	0	0	0	0	80	40	3 200		0	0
Total	126		24 280	285		27 000	90		27 000	460		22 100	79		27 250

Please add extra sheets if necessary

[11] Indicate the average cost per day.

E.2.3 ESTIMATED EXPENDITURES BY TYPE OF COSTS AND PARTNER

Please attach detailed explanations for all operational costs and any subcontracting cost in a separate sheet.

All figures in Euro	Total	%	P1 Slovak University of Technology, SK	P2 Univesity of Plovdiv, BG	P3 University of West Bohemia, CZ	P4 Univesity of Salamanca, ES	P5 Tillossilos ltd., FI	P6 Univesity of Miskolc, HU
A. Total staff cost (copy from E.2.2)	231 418	60,96	29 628	20 200	27 000	26 960	24 280	27 000
Operations:								
1. Travelling	40 000	10	5 600	4 300	4 300	4 300	4 300	4 300
2. ICT	40 100	10	6 000	10 000	3 200	3 200	2 300	3 200
3. Production	30 000	7,5	3 300	3 300	3 300	3 300	3 300	3 300
4. Overheads	26 103	7	2 903	2 900	2 900	2 900	2 900	2 900
5. Other: …… *(please specify)*	12 000	3	2 400	1 200	1 200	1 200	1 200	1 200
B. Total operational costs	148 203	39,04	20 203	21 700	14 900	14 900	14 000	14 900
Subcontracting *(please specify)*:								
1. …….								
2. …….								
…….								
C. Total Subcontracting costs -								
Total cost of the project = A + B + C	379 621	100	49 831	41 900	41 900	41 860	38 280	41 900

Please add extra sheets if necessary

All figures in Euro	Total	%	P7 University of Limerick, IE	P8 Slovak Society for Geometry and Graphics, SK	P9 Coventry University, UK			
D. Total staff cost (copy from E.2.2)	231 418	60,96	27 000	22 100	27 250			
Operations:								
6. Travelling	40 000	10	4 300	4 300	4 300			
7. ICT	40 100	10	3 200	6 000	3 000			
8. Production	30 000	7,5	3 300	3 600	3 300			
9. Overheads	26 103	7	2 900	2 900	2 900			
10. Other: …… *(please specify)*	12 000	3	1 200	1 200	1 200			
E. Total operational costs	148 203	39,04	14 900	18 000	14 700			
Subcontracting *(please specify)*:								
3. …….								
4. …….								
…….								
F. Total Subcontracting costs -								
Total cost of the project = A + B + C	379 621	100	41 900	40 100	41 950			

E.2.4 ESTIMATED FINANCING BY TYPE OF FUNDS AND PARTNER

All figures in Euro

	Total	% breakdown	P1 Slovak University of Technology, SK	P2 Univesity of Plovdiv, BG	P3 University of West Bohemia, CZ	P4 Univesity of Salamanca, ES	P5 Tillossilos ltd., FI.	P6 Univesity of Miskolc, HU
Amount requested from LEONARDO DA VINCI	284 716	75	39 306	31 300	31 300	31 260	27 900	31 300
National support								
Regional support								
Other sources (please specify)								
Partners' own funds	94 905	25	10 525	10 600	10 600	10 600	10 380	10 600
Other Community programmes[12]								
Total financing = Total cost of project (from table E.2.3)	379 621	100	49 831	41 900	41 900	41 860	38 280	41 900

Please add extra sheets if necessary.

[12] Only applicable to candidate countries.

All figures in Euro

	Total	% breakdown	P7 University of Limerick, IE	P8 Slovak Society for Geometry and Graphics, SK	P9 Coventry University, UK			
Amount requested from LEONARDO DA VINCI	284 716	75	31 300	29 700	31 350			
National support								
Regional support								
Other sources (please specify)								
Partners' own funds	94 905	25	10 600	10 400	10 600			
Other Community programmes[13]								
Total financing = Total cost of project (from table E.2.3)	379 621	100	41 900	40 100	41 950			

[13] Only applicable to candidate countries.