

VRTUOSI

STEP BY STEP, BUILDING A VIRTUAL EXCHANGE PROGRAM BETWEEN FIVE EUROPEAN UNIVERSITIES

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1. Introduction

- **ERASMUS** is regarded as one of the biggest successes of the EU educational policy, with more than 3,000,000 students and teachers since 1987.
- However, the majority of the participants has been **undergraduate** students.
- One of the main reason for this may be that **postgraduate** students might have more restrictive family, professional and/or work ties being more mature.
- With this motivation in mind, we have proposed the EU our **VRTUOSI** program, <http://www.vrtuosi.com>, within the Virtual Campus framework of the EU **Lifelong Learning Programme** (LLP), which was **one of the five proposals chosen by the EU in the 2009 call.**

2. General description of VRTUOSI

- VRTUOSI allows the **exchange of virtual courses** between **five European universities**. The company **Habber Tec** also participates in the program as a partner.
- VRTUOSI focuses on the **exchange of courses** at **postgraduate level** (Master and PhD degrees) for students original from these five universities in Decision Sciences.
- It provides **open access** to **part** of the **material**, being the rest of the material restricted to the students taking the courses, who will get credits after completing the proposed tasks.

2. General description of VRTUOSI

- **Óbuda University** (Budapest Tech)
<http://www.vrtuosi.com/members/obuda-university>
- **Tampereen Teknillinen Yliopisto** (Tampere Technological Inst.)
<http://www.vrtuosi.com/members/tampereen-teknillinen-yliopisto>
- **Universidade de Coimbra**
<http://www.vrtuosi.com/members/universidade-de-coimbra>
- **Université Paris Dauphine**
<http://www.vrtuosi.com/members/universite-paris-dauphine>
- **Habber Tec S.L.**
<http://www.habber.com>



2. General description of VRTUOSI

The courses are taught in English, including the following courses, all of them of 3 ECTS:

Rey Juan Carlos University

- Simulation
- Quality Control: Six Sigma

Öbuda University

- Operational Research Methods
- Computational Intelligence

Universidade de Coimbra

- Multiobjective Meta-Heuristics
- Multicriteria Decision Analysis

Université Paris-Dauphine

- Tools for public policy evaluation
- Game Theory and Practice

Tampereen Teknillinen Yliopisto

- Many valued similarities
- Data Mining

Right choice of subjects
Validation/equivalence policy

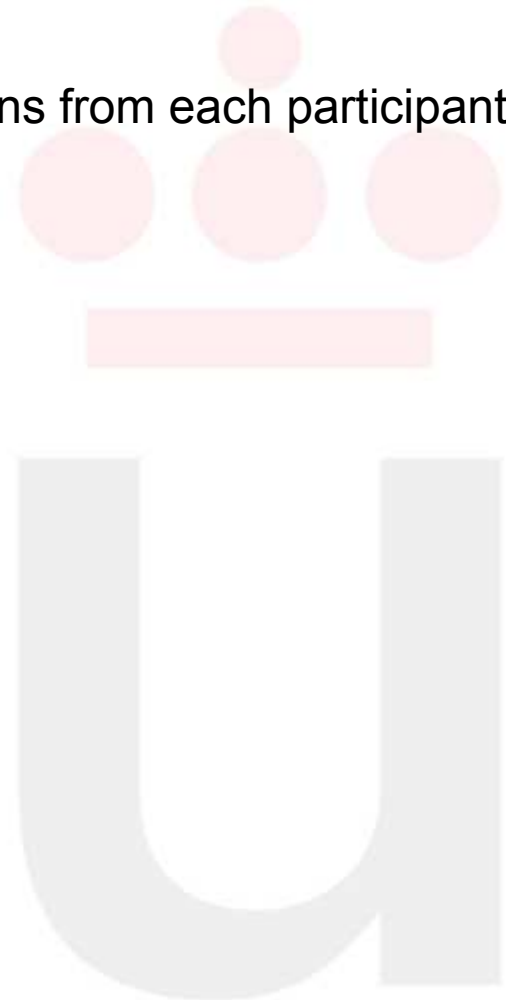
2. General description of VRTUOSI

- In this way, each **university**:
 - Teaches **two courses**, and
 - Sends **six students** to each course.
 - Then, each **course** is undertaken by **30 students**, and
 - The whole **master** is attended by **300 students** in this first edition 2010–11, which covers 30 ECTS.
- Each **student**:
 - Is allowed to register in a maximum of **6 ECTS**
 - (the usual academic load is **60 ECTS** per year for postgraduate students).

3. Implementation

The implementation of VRTUOSI has required specific actions from each participant university, and a common coordinated action, in matters as

- **Legal Framework**
- **A First Insight on the Virtual Campus**
- **Virtual Campus E-learning Tool**
- **Training**
- **Diffusion and Registering**
- **Courses**



3. Implementation

I. Legal Framework

- **Initial agreement** signed by the coordinating university (**URJC**), and the **EU**.
- An **ad hoc FP7-type agreement** issued by the **six members** of VRTUOSI
- Useful for future similar programs, see the VRTUOSI webpage for specific details.

II. A First insight on the Virtual Campus

- First idea: to launch a **Metacampus** over the virtual campuses of all universities.
- However, due to the **different maturity** of these virtual campuses, we created a **new website** offering **information** about VRTUOSI, containing **open-access material** and facilitating **access** to the URJC Virtual Campus.
- All the VRTUOSI courses are then hosted at the URJC Virtual Campus, <http://www.campusvirtual.urjc.es>, supported by a **WebCT** platform, www.blackboard.com, <http://courses3.webct.com/webct/public/home.pl>
- Unique domain, homogenization
- Common structure and tools, videos and interactive sessions using Adobe Connect.

3. Implementation

III. Virtual Campus E-learning tool

- Through the **VRTUOSI webpage**, and once identified by the system after introducing his/her unique login and password, a **student** can **access** his/her assigned **courses**.
- The Virtual Campus is the **main tool for e-learning purposes**. It hosts basic **information, materials** and rules about the courses. It also allows participants to **communicate** within a **secure environment**.
- The main modules from within Campus Virtual are: Control Panel, Guide, Materials, Calendar, Teachers, Students, Marks, Progress, Resources, Assignments, Exams, Communications and e-Talk

3. Implementation

IV. Training

- Given the **different maturity degrees** in the development of the virtual campuses of the five universities, we undertook **three training courses**.
- The first session took place in Madrid. Two others were online sessions using Adobe Connect®. Sixteen teachers attended the courses.

V. Diffusion and Registering

- VRTUOSI **program** was advertized through its **website**, and in the **areas of influence** of the five universities. Besides, additional diffusion was achieved by publicizing it in different **seminars, conferences, websites, distribution lists**, etc
- Registration process is done through VRTUOSI website. After validating the origin of the applicant students, we grant them an **accreditation, username and password** to gain **access** to the selected **courses**.

3. Implementation

VI. Courses

- Within the Virtual Campus, the ten courses follow the same methodology, based on that of the URJC Virtual Campus, acknowledged with the **quality certificate EFQUEL** (<http://www.qualityfoundation.org/>).
- The main part of the teaching material, except the tests and the exams, are **available** in the **open-access** area of the Virtual Campus.
- **Courses** are taught **sequentially**, in **three-weeks slots** (plus the time needed by the students to accomplish and deliver the tasks).
- Time length needed to implement VRTUOSI is **36 weeks**, being the overall time length of the program **two years**.

4. Improving Quality using Six-Sigma

- To ensure satisfactory **quality** levels in the rendered service to the potential users of VRTUOSI, we have developed and implemented a **Six-Sigma based quality management system**, which allows us to identify the weaknesses of our program or its courses.
- Six-Sigma is a **flexible methodology** whose stages are, in addition, based on the principles of the **scientific paradigm**.
- The key point is to use the **scientific method** for the **design** and **implementation** of the VRTUOSI project.
- In this way, the whole project can be afforded as a **scientific problem** and, as a consequence, the **scientific method** can be used to **solve** it.

4. Improving Quality using Six-Sigma

- Therefore, we have used characteristic techniques of the Six-Sigma methodology on the design and development of the processes within VRTUOSI
 - DMAIC cycle;
 - Failure Mode and Effects Analysis (FMEA) (Stamatis, 2003);
 - Anti-error and Fool Proof techniques, like Poka-Yoke (Shimbun, 1988), <http://www.poka-yoke.org.uk> for further details;
 - Processes Mapping, like the Suppliers, Inputs, Process, Outputs, Customers (SIPOC) standard (Damelio, 1996);
 - Advanced Data Analysis, like multivariate statistics, Multivariate Analysis of the Variance (MANOVA), and others (Spicer, 2005)

5. Conclusions

- VRTUOSI is a **pioneer online program** for the **international exchange of virtual courses**.
- Our university favors the **internationalization** of our **postgraduate programs**, allowing our students to access high quality courses of other European universities.
- The interaction between teachers from different universities is facilitating the launching of new **similar joint programs**. In this way, apart from various research programs we have in mind, we are planning to launch a joint Virtual Master based on the VRTUOSI courses.
- 2010-11 is the first academic course in which VRTUOSI is being implemented, and we are **currently recording our first empirical results**, which will be included in future works

Acknowledgments

- VRTUOSI is a project of Lifelong Learning Programme with code 502869-LLP-1-2009-ESERASMUS-EVC.
- Research supported by grants from Rey Juan Carlos University Innovation and Improvement on Education Program, and project MTM2009-14087-C04-01 from the Spanish Ministry of Science and Innovation.
- We sincerely acknowledge the contributions of the partners and staff of the Campus Virtual division at URJC, and we are especially thankful to María Teresa González de Lena, Raúl Moreno, and Javier Ramos de Castro, from URJC, and David Ríos Insua from the Royal Academy of Sciences in Spain.

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Questions ?

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