

Future Strategies for Higher Education Institutes - Joint Programmes vs Curriculum Development

International Academic Forum

Best Practices for EU Service Interoperability. Challenges for Higher Education and Research

University Politehnica of Bucharest

Bucharest ▶ Romania ▶ 2013.09.19-20



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U. PORTO

FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

Bună Dimineața!



Bran Castle - Transylvanian Alps.
www.google.pt: first image for “Romania”

Agenda

- Introduction
- **MESG** - Master in Service Engineering and Management
- **EMISS** - European Master in Innovative Service Systems
- **UPB ♦ FEUP - SEM Double Degree in Service Engineering and Management**
- Conclusions

Summary

Future Strategies for Higher Education Institutes

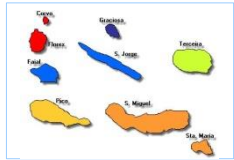
1. Offer flexible learning trajectories based on advanced research knowledge, advanced market needs, or both.
2. Focus on market needs and trends, and on young people aspirations and expectations.
3. Keep all relevant stakeholders involved, offering excellent service.

Programmes and Curriculum

1. Develop your own programme and curriculum based on your own strategy.
2. Establish external relationships.
3. Propose flexible learning trajectories (e.g.: Erasmus).
4. Develop joint programmes (e.g.: double degrees, multiple degrees).
5. Manage resources, and the «life cycle».

Introduction

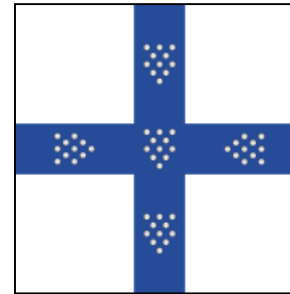
Portugal



← Azores



← Madeira



1139? / 1143 - 1185



1911-06-30

Year of independence: 1143
Under Spanish Rule: 1580-1640
Royal family in Brazil: 1808-1821
Year of EU entry: 1986
Total area: 92 072 km²
Population: 10.4 million

http://pt.wikipedia.org/wiki/Bandeira_de_Portugal

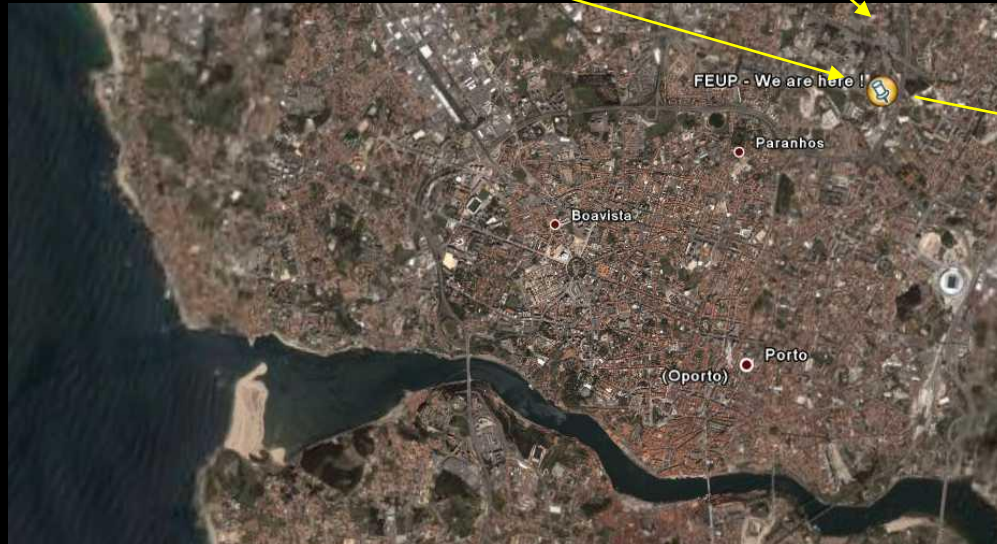
Porto - Portugal
View of Porto riverside



U. PORTO



 FEUP



University of Porto - School of Engineering



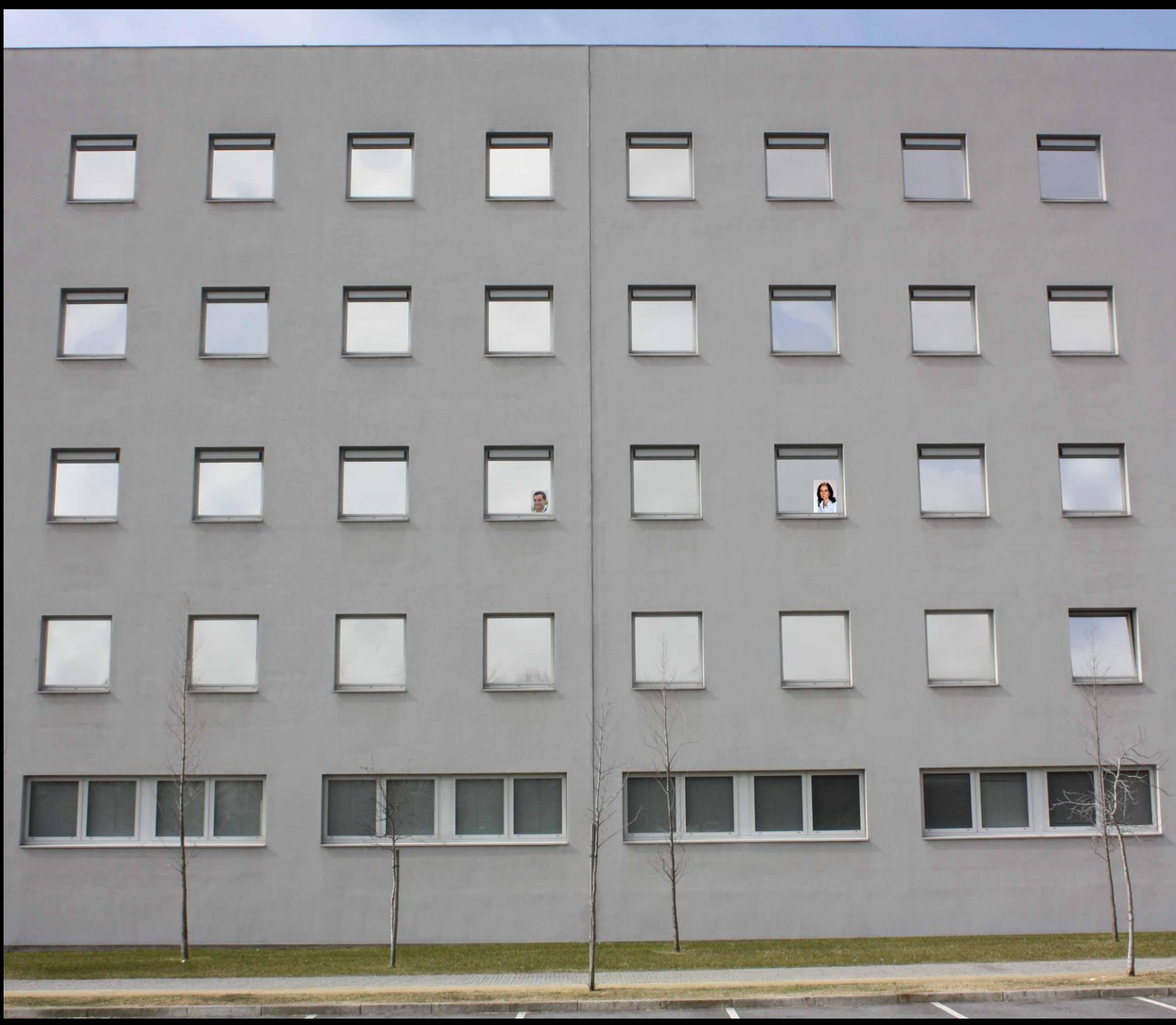
FEUP

- 15 Schools
 - 60 graduate programs
 - 120 master programs
 - 100 doctoral programs
 - 2200 lecturers and researchers
 - 1600 administrative staff
 - 27000 students, of which 7500 postgraduate
 - One of the Top 20 in RI3 Ibero-American Ranking of Universities and R&D Institutes <http://investigacion.universia.net>
 - One of the Top 500 in the Shanghai Jiao Tong Univ. Ranking of Universities
- 9 Departments
 - 10 / 25 graduate / master programs
 - 12 doctoral programs
 - 450 lecturers and researchers
 - 250 administrative staff
 - 8000 students (2500 postgraduate)
 - **Member of CESAER**
Conference of European Schools for Advanced Engineering Education and Research
www.cesaer.org
 - **Member of ERCIM**
European Research Consortium on Informatics and Mathematics www.ercim.eu



The School of Engineering
U. PORTO  **FEUP**







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MESG @ FEUP

Master in Service Engineering and Management

A Master Program in Services Engineering and Management at the University of Porto

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Faculdade de Engenharia da Universidade do Porto	University of New Orleans
R. Dr. Roberto Frias	2000 Lakeshore Drive
4200-465 Porto, Portugal	New Orleans, LA 70148-1566 USA
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ABSTRACT

The education of professional engineers has been mainly oriented towards the requirements of industry, although many graduates will start and end up working in service organizations. Services always involve interaction, either directly between people or using machines. Most services now require the use of technology, including self service machines, Internet and mobile equipments and may involve complex social and organizational issues. Although engineering programs have evolved in order to accommodate changes in the economy, new proposals must be taken into new graduate and postgraduate education.

This paper proposes MESG¹, a Master program in Services Engineering and Management compatible with the Bologna European framework. It is still a program to educate professional engineers, in the sense that graduates will be prepared to Conceive, Design, Implement and Operate (CDIO) complex value-added engineering systems. But MESG has a strong emphasis on: (i) understanding the innovative technologies now required for service provision, (ii) understanding the functional and the experience requirements of people using services, and (iii) management of the service CDIO process and understanding its value. Knowledge and experience about people and about business, in social-organizational environments, are important components in the advanced education of service engineers and managers.

FEUP educational experience

Programs	Industrial Engineering and Management BSc/MSc	Computing Engineering and Informatics BSc/MSc
specializations	Management, quantitative methods, information systems and operations management	Information systems, software engineering and web engineering
Background	Science and mechanical engineering	Science and computer engineering

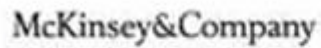
Most graduates end up working in service organizations, in areas such as logistics, quality, information systems, project management, requirements engineering or user interface specification.

The Master in Service Engineering and Management (MESG*, in Portuguese) aims at *developing competences to conceive, design, implement and operate technology enabled service systems.*

www.fe.up.pt/mesg
English (and Portuguese...)

* Mestrado em Engenharia de Serviços e Gestão

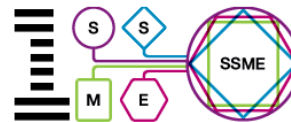




IBM Center for Advanced Studies in Service Engineering and Management



IBM Centers for Advanced Studies



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FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

Started in 2010

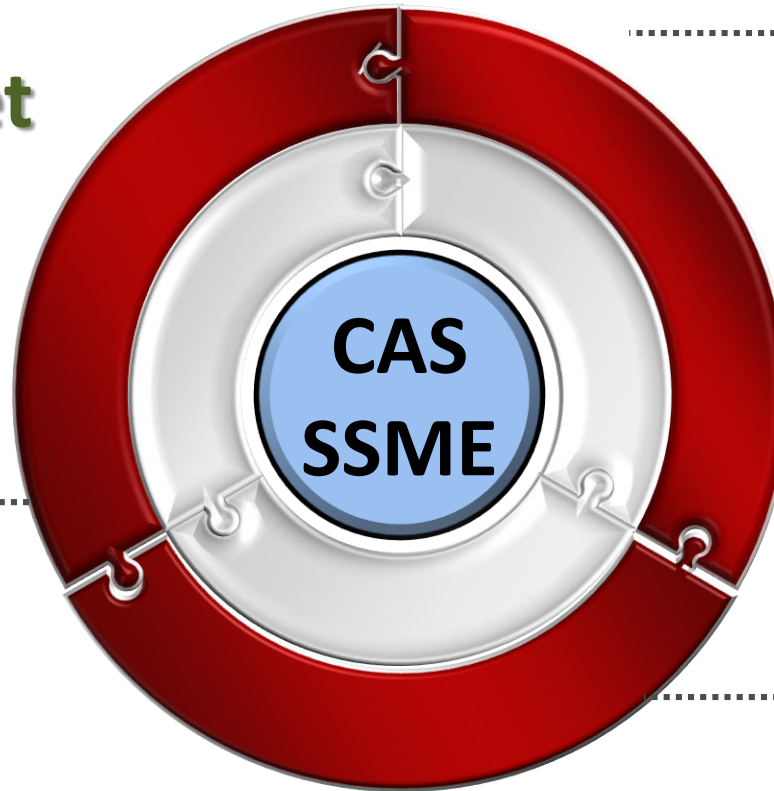


INESC PORTO
LABORATÓRIO ASSOCIADO

IDMEC

IBM CAS Portugal

**Smart Planet
Solutions**



**Health
Ecosystem**

**Smart Cities
& Mobility**

Public
*E-gov &
Education*

**Services Oriented
Architecture**

**Business Process
Modeling**

**Business Intelligence
& Analytics**

Cloud Computing

MESG Courses

1st Year - 1st Semester

Management

Business Process Modelling

Information Systems

Organizational Behaviour

Decision Support Systems

Human-Computer Interaction

Creativity

1st Year - 2nd Semester

Service Operations Management and Logistics

Services Marketing

Requirements Engineering for Services

Accounting and Financial Management

Multimedia and New Services

Human Resources Management

Cognitive Psychology

Introduction to Research Project I

2nd Year - 1st Semester

New Service Development and Design

Information Systems Architecture

Capital Budgeting

Corporate Strategy

Customer Relationship Management

Introduction to Research Project II

2nd Year - 2nd Semester

Dissertation – Research or Internship Project

www.fe.up.pt/mesg (English and Portuguese)

Additional Informations

- 2007: **20 students** selected from about 50 applicants mainly from Portugal and Brazil, from different backgrounds and varied professional experience (ranging from no experience to over 10 years).
- 2008: **30 students** selected from about 70 applicants.
- ...
- Lecturers selected from the ones with the best student evaluation or research achievement at FEUP, from technology, operational research, management and other social science areas. Involvement of some experienced managers and entrepreneurs.
- From 2010: Erasmus Mundus students from several countries (Vietnam, Indonesia, Venezuela, Fiji, ...).

Innovative Problem Solving

We aim at educating engineers to benefit society and the environment in a service economy



Excellent methods
Enable better and faster results,
but require expert professionals

Summary

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Programmes and Curriculum

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EMISS

European Master in Innovative Service Systems

DELLIISS: the context



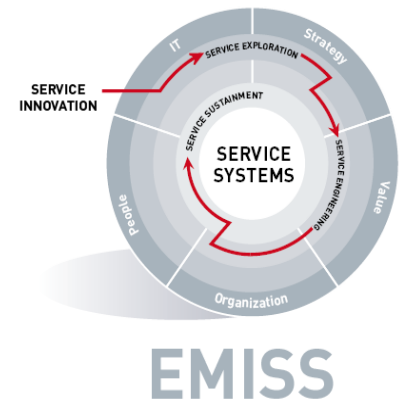
Education and Culture DG

Lifelong Learning Programme

- ERASMUS projects focusing on cooperation between higher education and enterprises
- Curriculum design



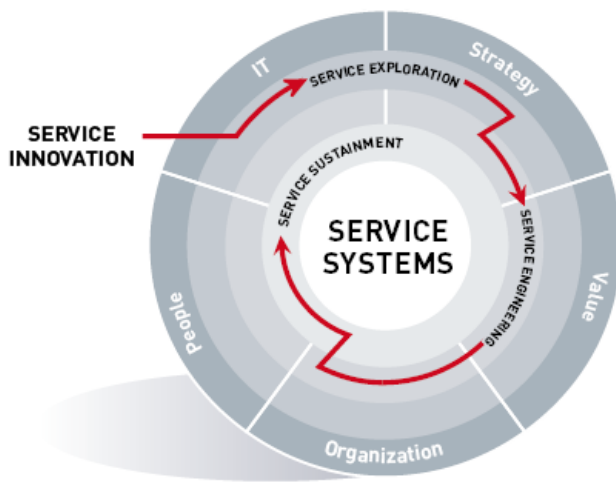
Designing Lifelong Learning
for Innovative Services
Systems



EMISS: Executive Master on Innovative Service Systems

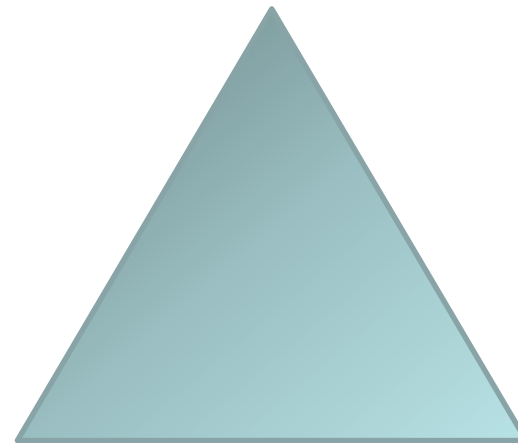


Knowledge Triangle approach



EMISS

Services Innovation



Higher Education

Research

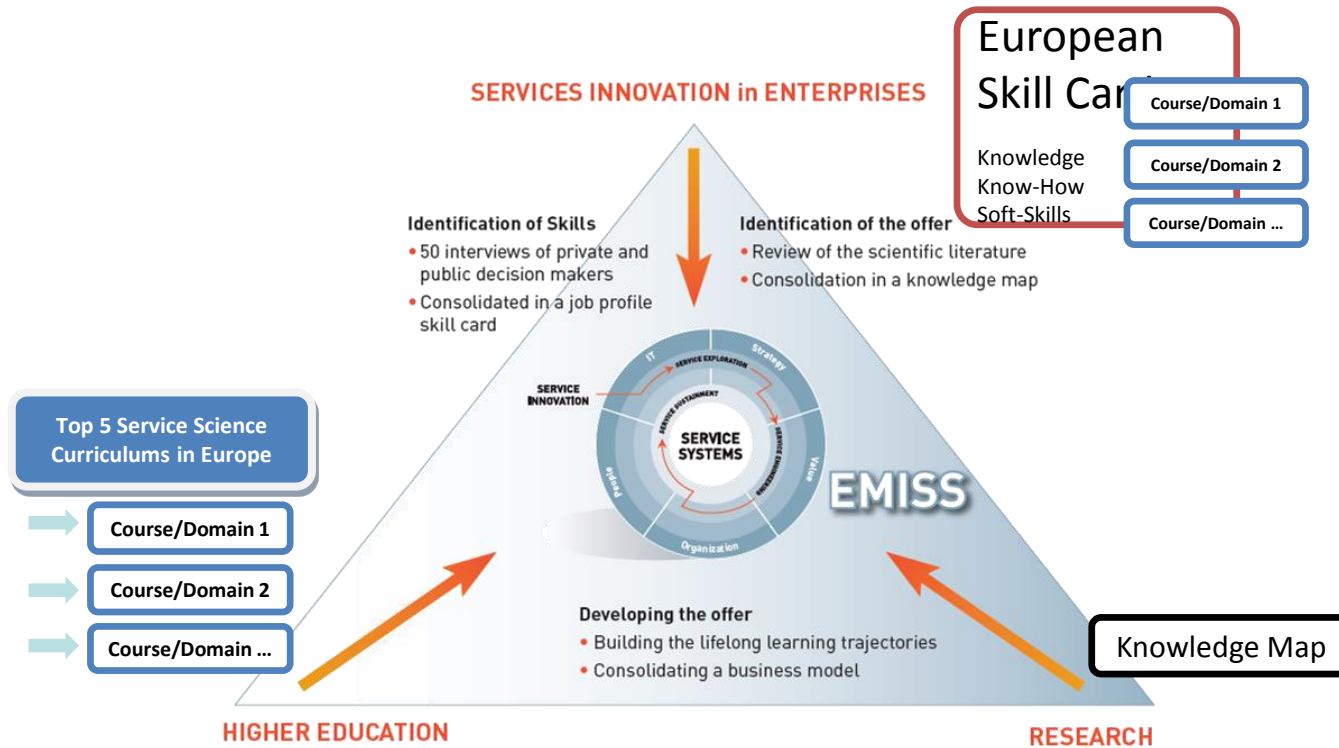
DELLISS: the context

Definition of an Service Science Actor

Service Science actors **can design** (creatively imagining and realizing), **execute/build, lead and manage sustainable service innovation** in every sector of the economy (public/private), with **short-term and long-term value co-creation potential**.

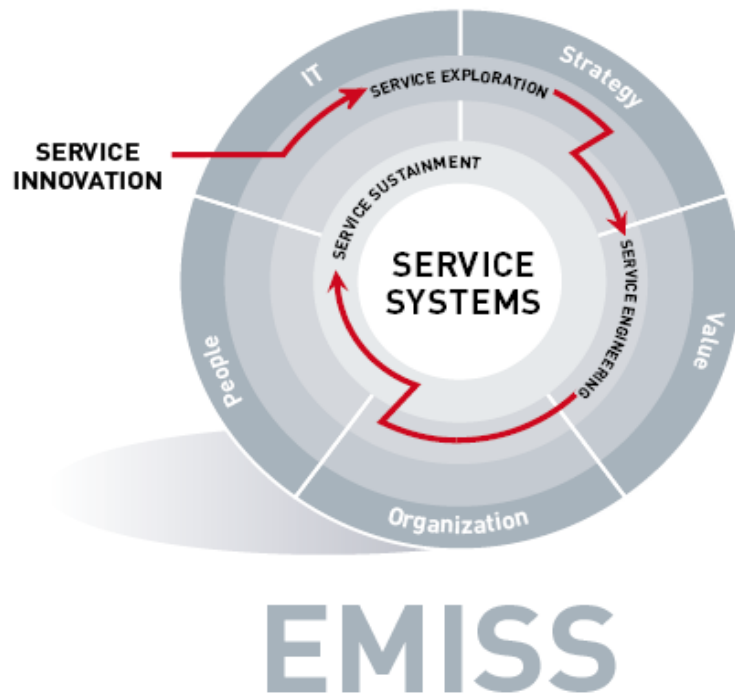
Service Science actors use **tools and methods to analyse/study** (as a watcher) and **increases service detection/productivity, to improve the predictability of demand for service and achieve more systematic service innovation**. He could act as a **service innovation promotor**.

DELLIISS: The Approach



DELLIISS - coordination meeting

EMISS: Executive Master on Innovative Service Systems



EMISS
European Executive Master in Innovative Service Systems

60 ECTS Diploma

First Edition:
January 2011 → December 2012

 FACULDADE DE CIÊNCIAS
HENRI TUDOR
www.fc.ucp.pt

EMISS: Executive Master on Innovative Service Systems

- **Invent new business services** based on ICT opportunities
- Manage their **evolution**: from ideas to service systems
- **Design and architect** sustainable service systems
- Build a **new professional network**
- Interact with a variety of highly skilled professors in services
- Get a truly multi cultural experience



Cost: € 15000

EMISS: Executive Master on Innovative Service Systems



Service Innovation (10 ECTS): understand the context for service value creation

Business model and strategies (5 ECTS): *economies of aggregation, networked organization, IP Strategies, strategic and service perspectives*

Opportunities (product/people/market, services bundling, ...) (2 ECTS): *bundling*

Entrepreneurship and innovation promotion (3 ECTS): *innovation*

Service Exploration (10 ECTS): design services for value and for customers

Generation of ideas, creativity (2 ECTS): *creativity, creative design process,*

Capture of market and customers needs (3 ECTS): *actionable knowledge, attributes, blueprinting, consumer needs and satisfaction, customer experience and expectations, service dominant logic*

Value and finance proposition (4 ECTS) : *assessment system, service pricing, consumer value, cost Oriented pricing approach, customer value proposition delivery, economies of aggregation, service laddering, Personalization, value co-creation*

Ontologies and domain modeling (1 ECTS): *cognitive information systems, conceptual Modelling, service terminology*

EMISS: Executive Master on Innovative Service Systems



Service Engineering (10 ECTS): manage the engineering of a service system

Management of the engineering of service systems, from the business and IT side (7ECTS) and including risk management (2ECTS): *alignment framework, architecture, alignment framework, BPEL, bundling, coreography and orchestration, service composition information system services, web services, service process, organization*

Ontologies and service systems modelling (1CTS): *cognitive information systems, conceptual Modelling, semantic web services*

Service Sustainment (10 ECTS): setting-up a governance framework for evolution

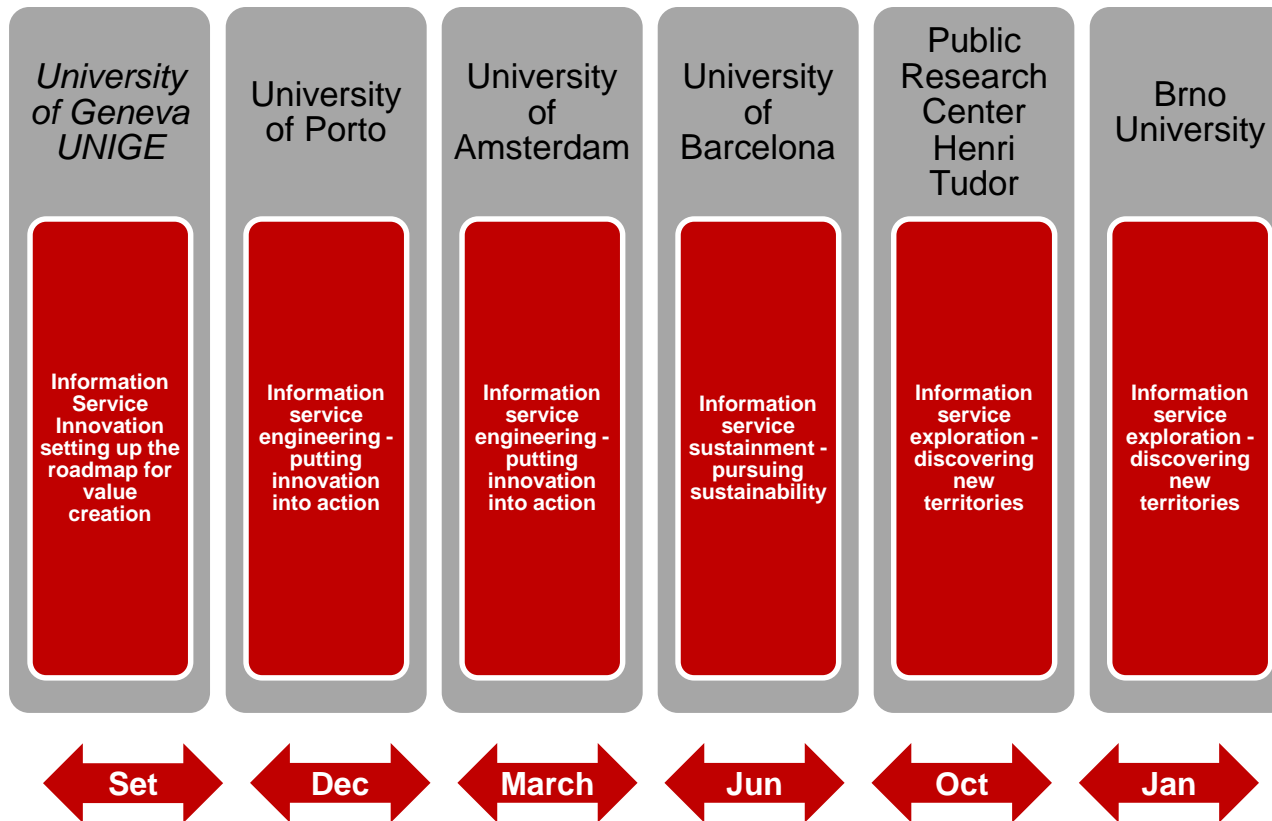
SLA and services contracts management (5 ECTS): *alignment framework, measuring, operation Management, service life cycle agreement*

Ontologies of services qualities (1 ECTS): *conceptual modelling, e-service quality, non-functional service properties*

Learning on agile project management methods and service lifecycle (4 ECTS):

Master Thesis (20 ECTS)

EMISS: Executive Master on Innovative Service Systems



EMISS: Executive Master on Innovative Service Systems



So, why it didn't work?

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SEM DD @ UPB ♦ FEUP

Service Engineering and
Management
Double Degree

AGREEMENT
ON A DOUBLE DEGREE MASTER PROGRAM
IN SERVICE ENGINEERING AND MANAGEMENT
(DDM-SEM)

120 ECTS Diploma
First Edition:
September 2013 - July 2015

Double Degree Between:

University Politehnica of Bucharest, Faculty of Automatic Control & Computers - UPB - www.upb.ro
represented by its Rector, Mihnea Costoiu, with legal domicile at 313 Splaiul Independentei, 060042-Bucharest (Romania) and the Faculty of Automatic Control and Computers (A&C) represented by its Dean, Adina Magda Florea, with legal domicile at 313 Splaiul Independentei, 060042-Bucharest (Romania)

University of Porto, Faculty of Engineering - FEUP - www.fe.up.pt
represented by its Rector, José Carlos Diogo Marques dos Santos, with legal domicile at Praça Gomes Teixeira, 4099-002 Porto (Portugal) and the Faculty of Engineering (FEUP) represented by its Director, Sebastião José Cabral Feyo de Azevedo, with legal domicile at Rua Dr. Roberto Frias, 4200-465 Porto (Portugal)



Editors:

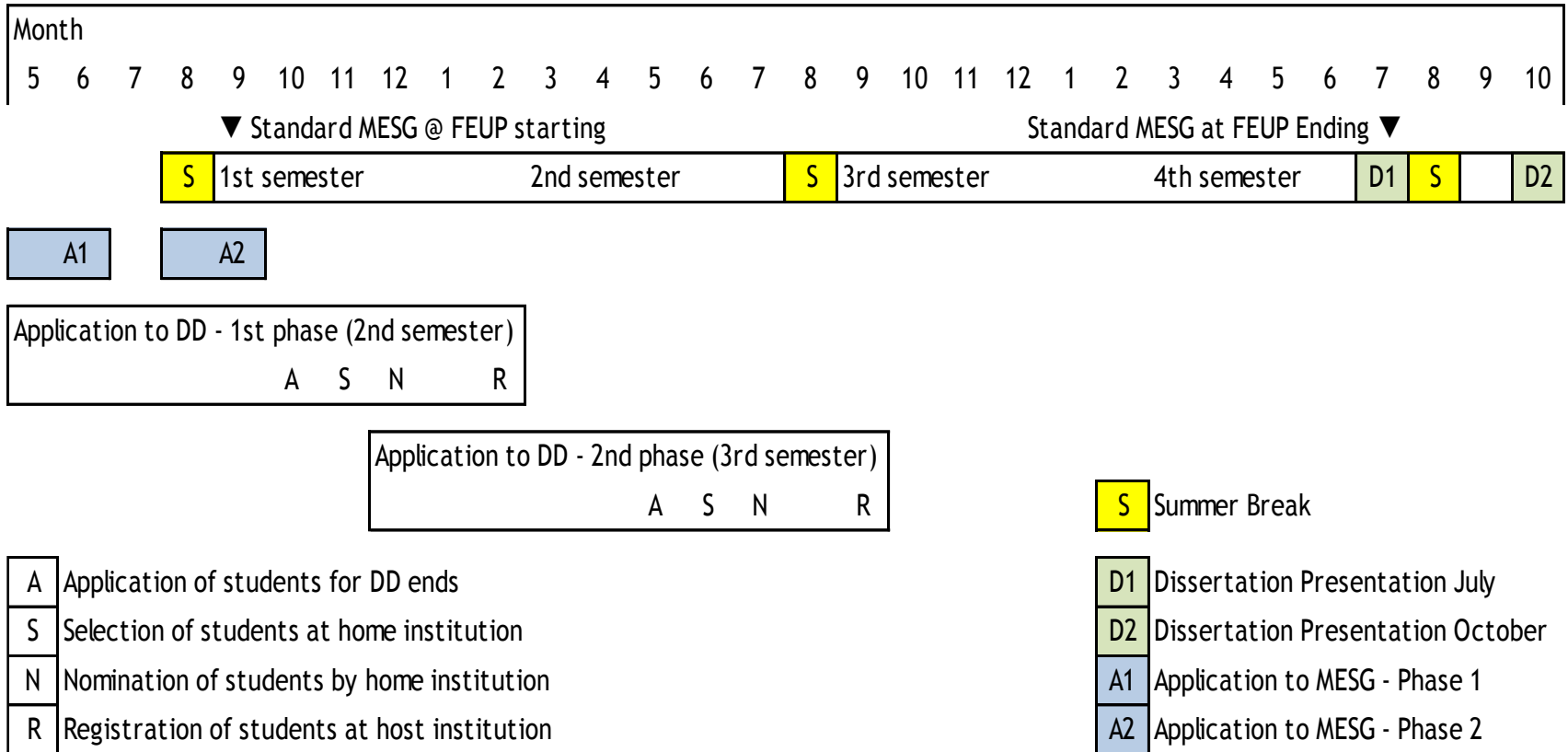
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Monica Dragoicea monica.dragoicea@acse.pub.ro

José Faria jfaria@fe.up.pt

Plan for DD Application



Example of timetable for DD application, selection, nomination and registration of students with FEUP as home institution.

Most students will use 2nd phase of application to DD

DD – SEM / MESG

- 60 ECTS from courses at the home institution
- 30 ECTS from courses at the host institution.
- 30 ECTS corresponding to the final project under double supervision:
 - FEUP: ESG 0026: Dissertation project
 - UPB: 03.M4.O.17-16: Development and defending the master thesis - 14 ECTS.
03.M4.O.17-17: Research for the dissertation project - 16 ECTS.
- The final dissertation research project will be done in double supervision, and the master thesis can be defended in any of the two institutions.
- Students participating in this program shall produce a master thesis written in English, with a summary in Portuguese, and in Romanian. It shall be presented on request in one of the host or home institutions.
- Thereafter, after completion of all required program credits, students shall be awarded the master degree “Service Engineering and Management” at the University Politehnica of Bucharest, Faculty of Automatic Control and Computers (SEM), and University of Porto, Faculty of Engineering (MESG).

Example of Learning Trajectory

1st academic year at UPB

1st semester	Pos	ECTS	2 nd semester	Pos	ECTS
C11: Mathematical Modelling of Economic Processes	I	5	C21: Business Process Modelling	II	5
C12: Data Mining and Data Warehousing	I	5	C22: Supply Chain Management and Logistics	II	5
C13: Architecture of Service Oriented Information Systems	I	5	C23: Communication Management and Cognitive Psychology	II	5
C14: Service Marketing and Financial Performance of Business	I	5	C24: Foundations of Service Science	II	5
C15: Network and Systems Security	I	5	C25: Accounting and Financial Management for Services	II	5
Research project	I	5	Research project	II	5
Total		30	Total		30

Example of Learning Trajectory

2nd academic year at FEUP

1st semester	Pos	ECTS	2 nd semester	Pos	ECTS
ESG0025: Multimedia and New Services	I	5	Master thesis with double supervision	IV	30
EIC0057: Human-Computer Interaction	I	5			
ESG0018: Introduction to Research Project II	III	5			
ESG0019: New Service Development and Design	III	5			
ESG0020: Corporate Strategy	III	5			
Total		30	Total		30

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Conclusions

BUREAU D'ÉCHANGE DE TOKYO AP

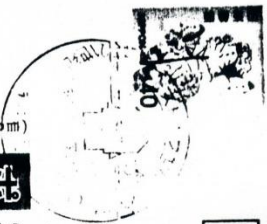
JAPON

SERVICE DES POSTES

PAR AVION

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(印字)



(株式会社)

ポルトガル

João FALCAO

様



R LUIS WOODHOUSE 132

4200 PORTO PORTUGAL

〒4200-1321 ポルトガル・ポルトガル共和国ポルトガル市ルイス・ウードハウズ邸
 2001年1月11日
 東京郵便局

2001



昭和60年9月
Septembre 1985

同封の郵便物は、科学万博郵便局の西暦2001年に配達する郵便ポストに投入されていまして、便宜差出人の御要望どおり、西暦2001年に配達するようにいたしました。

ENVOI DEPOSE EN 1985 A L'EXPOSITION
SCIENTIFIQUE INTERNATIONALE DE
TSUKUBA, JAPON, EN VUE D'ETRE DISTRIBUE
EN L'AN 2001.

ITEM MAILED IN 1985 AT THE TSUKUBA
EXPO 85 POST OFFICE, JAPAN, FOR
DELIVERY IN THE YEAR 2001.

Envío depositado en 1985 en la Oficina de Correos de la
Exposición Internacional de Tsukuba'85, Japón, para ser
distribuido en el año 2.001.

这是投入“科学万博邮局公元2001年投递邮筒”的邮件。
为方便外国顾客，我们也按照他们的要求，将信件于2001年投
递。

Die beiliegende Postsache fand sich in einem der Briefkästen,
die auf der Tsukuba Expo '85 für im Jahre 2001 zuzustellende
Post aufgestellt wurden, und ist entsprechend dem Wunsch des
Absenders bis zum Zustellungsjahr aufzubewahren.

科学万博郵便局長
杉本忠夫

ITEM MAILED IN 1985 AT THE TSUKUBA
EXPO 85 POST OFFICE, JAPAN, FOR
DELIVERY IN THE YEAR 2001.



人間・居住・環境と科学技術

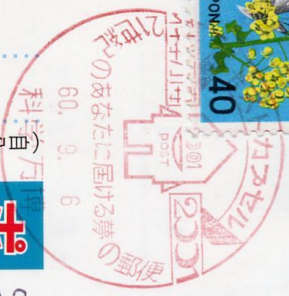
科学万博

The International Exposition, Tsukuba, Japan, 1985



郵便はがき

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(自分と11と名前)

ポストカプセル

JOAO FALCAO

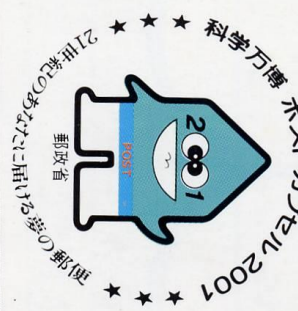
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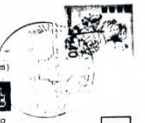


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BUREAU DE CHANGE DE TOKYO AP JAPON

PAR AVION

SERVICE DES POSTES



ポストカプセル
JOAO FALCAO
様

R LUIS WOODHOUSE 132
4200 PORTO PORTUGAL

(8-19)

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●このはがきが届く日が楽しみだね●

ポストカプセル2001

好きな
テレビスター

CHEGOU

きみの宝もの

FINALMENTE

記録

・学年 EM

・身長 DEZ

・体重 69

なりたい職業

APOSTO

ともだちの名前

ISSO

とくいな勉強

VOLTO

すきな遊び

JA

2001年は？

わたしの夢……

IR A LUA

P.A.F.C.

PORT.

このはがきを書いた日 昭和 年 月 日

«To win we need three things we can define: to know how to work, to follow opportunities, and to create relationships. We also need something else, that we find difficult to define, and, lacking a better name, we call luck»

Fernando Pessoa, 1926

Obrigado!