

Cybersecurity curricula in European universities

Study commissioned by IPTS

Presentation of the results of the study

Second Workshop
Cyber-Security Skills and Training Needs
Insitute for Prospective Technological Studies

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The objective of the study

Produce a comprehensive picture of university curricula in cybersecurity in European Union

Mains deliverables considering public universities across six countries :

- Comparative description of university courses and degrees in Information Technology Security ;
- Students registered and diplomas delivered ;
- By level and domains/topics ;
- Research activity in the universities surveyed

And contribute to the discussions at second workshop

Methodology

A survey in the six countries, with a common survey format :

France (OST)

Belgium, Germany, Greece, Italy, United-Kingdom (F. R.)

Data gathered :

- identification of courses and topics
- Students registered and diplomas
- Continuous courses/refreshing courses
- Research activities

The survey has 27 distinct questions, not all fulfilled

Organisation of the study and constraints of the survey

Coordination of the study by OST
and Fondazione Rosselli as partner

Constraints :

- Time-schedule of study
- Two or three weeks for survey
- Incomplete data to obtain good comparaison
- Criteria as minimum duration of training : 50 hour/year
- Difficulty to use the European Credit Transfer Credit System

General Results

119 universities/courses identified

in all the fields related to Information Security
not only on the core of competence
as cryptography but also
on legal and management courses

Number of students in year 2001 = +/- 4 024

89 units of research in the different fields

Presence of short courses in a lot of institutions

University courses

	University Courses	Students 2001	Research units
Belgium	2	158	8
France	12	178	7
Germany	13	666	23
Greece	6	307	5
Italy	29	1 010	21
UK	51	1 705	25
Total	113	4 024	89

Data revised, Tuesday 3

Students per course

Average hour per course

	Students per course	Average hour/course
Belgium	79	56
France	20	446
Germany	61	106
Greece	77	57
Italy	56	191
UK	55	464

Only courses with complete data

General observations

A very small number of institutions covering all the spectrum of training in Information Security

Good representation of courses in the core competence in department of science computer and mathematics

Many courses covering legal aspects, less in management of security

Continuing courses or refreshing courses numerous : awareness and other matters

Recommendations concerning national authorities - 1

- 1 To adopt a real interdisciplinary approach ;
- 2 To foster other scientific aspects of security legal, commercial, management aspects ;
- 3 To promote the human and social sciences for a better understanding of security issues ;
- 4 To take into account in the education system the three types of courses: awareness, professionals and technical skills, continuous education ;
- 5 To build bridges between long and specific courses and continuing education ;

Recommendations concerning national authorities - 2

About continuing education , it is not quite clear what is the concern of the public or the private sector

- 6 To favour the mobility of students and training staff in cybersecurity
- 7 To allow students to complete their education in a industrial or research environment
- 8 To facilitate access to public fellowship with European label on Information security

Recommendations at the European level

- 1 Elaborate specifications in Systems of Information Security and certification qualification ;
- 2 To build a European data base of all courses in cybersecurity, with better criteria for their identification ;
- 3 To set up a *European correspondents networks*, specialized in cybersecurity to determine how to share the skills, how to disseminate and possibly enhance the skills among EU countries; with special focus on the less favoured countries and the candidate countries.

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