

Intensive Programme – Secure Web Applications



***Best Practices for Protection and
Development
11 – 24 May 2014
Santander, Spain***



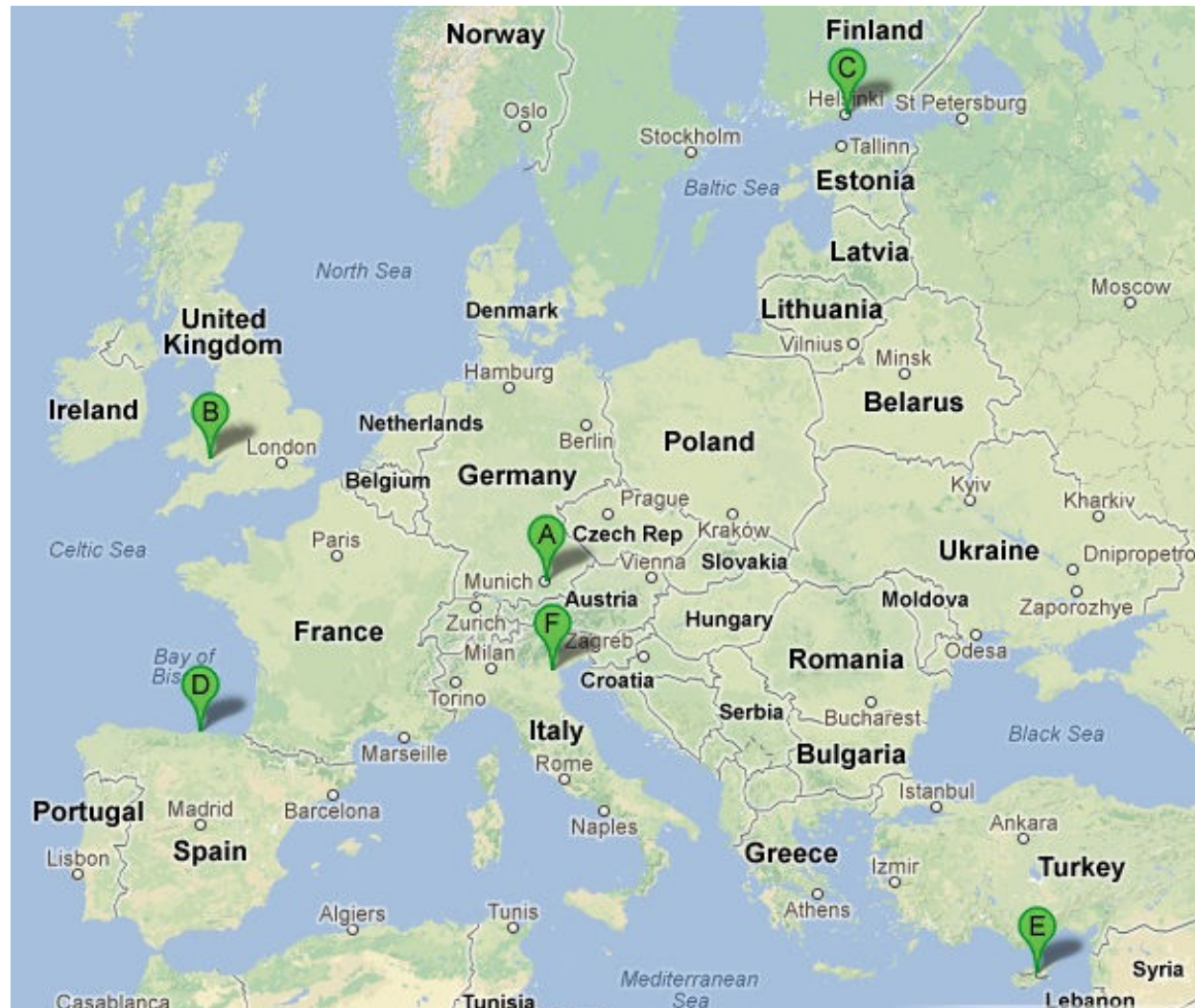
University of Cantabria



Partner Universities

- Munich University of Applied Sciences, Munich, Germany,
 - IP Coordinator
- Frederick University, Cyprus
- Metropolia University of Applied Sciences, Helsinki, Finland
- **University of Cantabria, Santander, Spain**
- University of Glamorgan, Pontypridd (Cardiff), United Kingdom
- University of Padua, Padua, Italy

Partner Universities



- A: Munich
IP 2012**
- B: South
Wales,
Pontypridd
IP 2013**
- C: Metropolia
Helsinki**
- D: Cantabria
Santander
IP 2014**
- E: Frederick,
Nicosia**
- F: Padova**

Where is Santander, Spain?



Santander



Objectives of the Programme

- To improve the quality and to increase the volume of student and teaching staff mobility throughout Europe, so as to contribute to the achievement by 2012 of at least 3 million individual participants in student mobility under the Erasmus programme and its predecessor programmes;
- To improve the quality and to increase the volume of multilateral cooperation between higher education institutions in Europe;
- To increase the degree of transparency and compatibility between higher education and advanced vocational education qualifications gained in Europe;
- To improve the quality and to increase the volume of cooperation between higher education institutions and enterprises;
- To facilitate the development of innovative practices in education and training at tertiary level, and their transfer, including from one participating country to others;
- To support the development of innovative ICT-based content, services, pedagogies and practice for lifelong learning.

Topics on Secure Web Applications

- Information Security Threats
 - Malware
 - Hacker tools and techniques
- Web Application Attacks
 - Injection flaws, buffer overflow
 - Cross site scripting (XSS)
 - Cross site request forgery (CSRF)
 - Insecure Direct Object References
- Social Networks Security Threats
 - Web 2.0 threats
 - Spam, phishing, privacy issues in social networks
 - Web application integration
- Network Security Vulnerabilities
 - Cloud computing risks
 - Protocol weaknesses

Topics on Secure Web Applications

- Attacks on the Enterprise Network Platform Security
 - Denial of service
 - Wireless weaknesses
- Develop Secure Network Applications based on
 - Common guidelines and models: Software Development Life Cycle (SDLC)
 - Open Web Application Security Project (OWASP) Software Assurance Maturity Model (SAMM)
- Protection of the Applications and of Network Access
 - Firewalls, Packet filtering, Secure Socket Layer (SSL)
 - Virtual Private Network (VPN), Intrusion Detection/Prevention Systems (IDS/IPS), Honeypots
 - Biometric protection
- Context of IT Security
 - Data security standards, compliance guidelines
 - Legal, privacy, and ethical aspects

Programme: The Birdseye View

- Preparatory phase:
 - Application and Selection (**November**)
 - Recommended Reading (**December**)
 - Preliminary Exercises (via vhb – online, **December**)
 - Assignments of the Preliminary Exercises (**February**)
- Course: Santander May 11th – May 24th, 2014
 - Lectures
 - Labs (Group sessions)
 - Presentations
 - Exam
- Evaluation

Didactic Concept

- Bring together 72 students from 6 European countries
- Build 12 teams of 6 students from 6 European universities
- 2-4 professors from each of the 6 European universities teach the subjects they are specialised in
- Morning: lectures
- Afternoon: practical exercises, small projects in groups
each team presents its results
- Evening: revision and preparation for the next day
- Weekends: relax, social programme

Programme of Lectures and Other Activities

1. Arrival. Travelling and accommodation arrangements in Santander
2. Introduction to IP; Industrial Speaker
WEB-Application Attacks
3. cont.
4. cont.
5. Develop Secure Network Applications
6. Web Application Integration
7. Social Programme / Free Time
8. Social Programme / Free Time
9. Classical network access attacks
10. Protection of the Applications and of Network Access
11. Biometric protection, Security of e-Health applications
12. Cloud and virtualization Network Security Vulnerabilities
13. Context of IT- Security; Industrial Speaker;
Exam; Labs and Contest Results.
14. Departure from Santander

Duration – Course Structure

- Two weeks Intensive Programme.
- 11 – 24 May 2014.
- Morning session:
 - Lectures
- Afternoon session:
 - Lab assignment related to the topic of the day (international teamwork)
 - Presentation of lab results, Q&A, Discussions
 - Evaluation of the day
- Weekend session:
 - Social and cultural program

Application - Deadline

DEADLINE: 15 November 2013, 15:00

- Complete the IP in SWEB Application form.
- Return CSED Erasmus Coordinator (Rm. 114, CYTA Building) or email to com.mc@fit.ac.cy

- Information

<http://staff.fit.ac.cy/com.mc/erasmus.php>

- Application URL:

<http://tinyurl.com/ip-sweb-2014>

Selection Process

- Student's performance
 - GPA and Cumulative GPA
- Student's behavior and character,
- **Knowledge of the English language.**
- Eligible students will be invited for an interview
- IP Student List will be announced at the latest by 23 of November.
- Students must confirm participation upon the announcement of the participants list.

Participation

- Sign the IP Participation Agreement:
 - Ensure participation
 - Register for the preparatory course and Labs
- If for any reason a student is unable to participate, then the student must reimburse the University for any non retrievable costs.

Preparation - Labs

- Preparation Lab: Sessions will be held to support prior knowledge of students.
 - Computer Networks, TCP/IP, Network Management
 - Java
 - Apache, HTML, JavaScript, and CSS
 - Databases and SQL,
 - Network programming
 - Internet Technologies
 - IT Security

Evaluation

- Preparation (30%)
 - Preparation Labs
 - Assignments
 - IP Sessions (30%)
 - Lecture participation
 - Group Labs
 - Group Presentations
 - Q&A
 - Final Exam (40%)
- Successfully Pass:
 - 50% in EACH part
 - In case of Failure
 - Zero ECTS
 - May have to pay certain costs



Notes on Evaluation

- The final grade will be represented in percentage and not as a numeric grade.
- Each partner university will convert the percentage grade into their own numeric grade based on their own grading scale.
- The course is considered successfully completed if the student has achieved at least 50 % in all of the 3 parts listed above.

Costs & Expenses

- Percentage of travelling expenses + subsidy of hotel + social events
 - Approximately €150-200
- Accommodation is covered by the IP.
 - A simple Hotel in Santander (2 beds, en-suite, breakfast), bus connection to University (~25 mins).
 - Breakfast is provided.
- Launch and dinner paid by students.
- Some social events may required additional expenses (€ 50)

Flights and Local Traffic

- Flight tickets (ordered & paid by students, 90% reimbursed later)
 - ✈ Sun, May 11, 14:10 Larnaca → Frankfurt, arrive 17:20
 - ✈ Sun, May 11, 20:40 Frankfurt → Bilbao, arrive 22:50
 - ✈ Sun, May 25, 07:45 Bilbao → Munich, arrive 10:00
 - ✈ Sun, May 25, 11:20 Munich → Larnaca arrive 15:40
- Transfer (coach or train)
 - Home ↔ Larnaca Airport (paid by students, 90% reimbursed later)
 - Bilbao ↔ Accommodation
by coach: organised and paid by project (~1.5 hours),
- Local Traffic (paid by students)
 - Hostel ↔ University (~ 2€/day/student for local train or coach)
 - Free time in Santander
- Limit: 650 € for flight and transfer ⇒ book early

Preparation for the IP

- Open Web Application Security Project
<https://www.owasp.org>
- OWASP Top 10 Web Application Security Risks
https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project
- OWASP Appsec Tutorial Series on YouTube
<http://www.youtube.com/watch?v=CDbWvEwBBxo>
- Hacking-Lab
<https://www.hacking-lab.com/>
- OWASP ESAPI: web application security control library
<http://code.google.com/p/owasp-esapi-java/>
- Google: Web Application Exploits and Defenses
<http://google-gruyere.appspot.com/>
- Haking, IT Security Magazin
<http://de.hakin9.org/>