SEGURIDAD Y PRIVACIDAD EN ENTORNOS DE APLICACIONES

MASTER UNIVERSITARIO EN INGENIERÍA INFORMÁTICA

About me

Rubén Ríos

- PhD in Computer Science
- Office:
  - Edificio Ada Byron (A.3) / ETSI Informática (3.2.27)
- Tutoring Hours (with appointment):
  - Monday: 08:30 – 10:30 (3.2.27) / 14:30 – 16:30 (Virtual)
  - Thursday: 12:30 – 14:30 (3.2.27)
- Contact:
  - e-mail: ruben.rdp@uma.es

Course objectives

The course pursues three main objectives:

- (i) To provide an overview of security and privacy challenges and solutions in IoT and Cloud scenarios
- ii) To analyze different security issues in web environments and the associated best practices
- iii) To learn about different security techniques that have emerged in recent years to address security and privacy issues in complex scenarios

Recommendations

Prior knowledge on Information Security fundamentals is highly recommended

The course should ideally be taken in parallel with the Cloud, IoT and Data Science courses

- This would help to contextualize the security and privacy mechanisms addressed here

Course contents

1. **IoT Security**
2. **Cloud Security**
3. **Data Privacy**
4. **Web Security**
5. **Advanced Applications**

Course contents

1. IoT Security

- 1.1 Key exchange protocols
- 1.2 Autentication protocols
- 1.3 End-to-end encryption

2. Cloud Security

3. Data Privacy

4. Web Security

5. Advanced Applications

Course contents

1. **IoT Security**
2. **Cloud Security**
    - 2.1 Security at rest
    - 2.2 Key Management as a Service
    - 2.3 Data life cycle
3. **Data Privacy**
4. **Web Security**
5. **Advanced Applications**

Course contents

1. **IoT Security**
2. **Cloud Security**
3. **Data Privacy**
    - 3.1 Privacy
    - 3.2 Anonymization
    - 3.3 Online tracking
4. **Web Security**
5. **Advanced Applications**

Course contents

1. **IoT Security**
2. **Cloud Security**
3. **Data Privacy**
4. **Web Security**
    - 4.1 HTTP Security Headers
    - 4.2 Certificate transparency
    - 4.3 Web vulnerabilities
5. **Advanced Applications**

Course contents

1. **IoT Security**
2. **Cloud Security**
3. **Data Privacy**
4. **Web Security**
5. **Advanced Applications**
    - 5.1 Blockchain
    - 5.2 Privacy Enhancing Technologies
    - 5.3 Advanced Key Management

Calendar

Mondays 18:15 - 20:30

Class: 3.0.11

Lab.: TBD

Class Dynamics

Lectures with references to supplementary material to expand knowledge

Project-based class work and individual activities

- Groups of 4-5 students
- Coding + video/presentation
- Report + co-evaluation

Occasional tests to reinforce knowledge

Evaluation

The final grade of the course in May will be the weighted sum of the grades obtained in the following activities:

- **Projects**: 90%
- **Tests**: 10%
- **Class involvement**: 10%

NO exam in May!

Should the student not pass the course with this procedure there will be an exam in June (24/06/2024)

- To pass this exam, which includes both theory and practice, the student needs to obtain 5 out of 10 points

Bibliography

There is no specific bibliography for the course because it deals with very novel topics

- The main source of information will be the Internet
- You can also access books through Safari Books Online for free using your UMA email account
  - Information Security
  - Application Scenarios
  - Programming languages

Time for questions