MIFARE solutions are massively deployed mainly for Transportation & Physical access services, with existing legacy infrastructures already on the field. Such solutions can be implemented via Mobile NFC Secure Element & Handset applications, also benefiting from connectivity & User Interface of handset. This course will provide the necessary knowledge to understand how such solutions can be designed, deployed & used in the Mobile NFC ecosystem.

At the end of the training you will

> Have an overview of the different MIFARE solutions & their main use cases & markets
> Understand how MIFARE services can be integrated & used in Mobile NFC solutions
> Get feedback on existing deployments, with lessons learned & best practices
> Have an idea on future evolutions of MIFARE-related services…

Who should attend

Telecom, Transport, Bank staff:
> Programme/Project Managers
> VAS staff
> Architects
> Security Managers
> Integration & Test Staff
> SIM managers
> System developers
> …

Pre-requisites:
> Overview on NFC Ecosystem & technology recommended

This course is held in English.

Key topics

> MIFARE: Classic, Plus, DESFire…
> MIFARE4Mobile
> Secure Element - UICC
> Mobile User Interface
> Security
> Remote management
> Trusted Service Management
> Testing & Validation
> Feedback from field
### Course Schedule

#### Day 1

**Introduction to MIFARE technology & market**
- What is MIFARE?
  - Specifications, history, licenses…
- Overview of different MIFARE protocols
  - Classic, Plus, DESFire…
  - Positioning with other solutions (Calypso, Felica…)
- Main use cases
- Markets & deployments

**MIFARE basics**
- Protocol (commands, timing…)
- Mappings
- Files
- Security…

**« MIFARE »: from plastic cards to Mobile NFC solutions**
- Overview - MIFARE applications in Secure Element/Mobile - User Interface
  - Going Mobile…benefits & constraints (UI, connection, RF, CLF, CLT…)
  - Classic, Plus, DESFire application basics
  - Compatibility between themselves & with other SP apps
    - RF parameters: UID, SAK…

**MIFARE4Mobile**
- What is it? Why? (need for interoperability…)
  - Specifications & history
- Solution architecture (SE applets, UI apps, OTA management)
- How does it work
  - User experience
  - Basic functionality
- Evolutions

**How to integrate & Deploy « MIFARE » for Mobile NFC**
- UICC focus:
  - OS specifics, configuration of UICC, activation/deactivation
  - "Mifare" related applets, codecs & specific data
  - Pre-loaded, post-issuance of applications, data perso
- Handset focus
  - UI apps, security (GP SE AC) other?
  - User experience (selection, by default, other?)
  - Multi-SP/app schemes
  - NFC Compatibility with existing infrastructure
  - Testing & Validation in transport/access/payment context
    - reader issues, legacy issues
- Remote management of solution
  - OTA, POS?
  - What can & cannot be done remotely
  - SP interaction
- SP & MNO-TSM focus
  - Compatibility, Architecture examples, full life-cycle management, specific services (ex: top-up)
- Lessons Learned & Best Practices for transport & other use cases

**Evolution & trends for MIFARE related use cases**
- Transport, physical access, MIFARE Tag/card reading, other…

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For Location and course fee please refer to regional schedules on: [www.gemalto.com/training](http://www.gemalto.com/training) or contact us at [http://www.gemalto.com/training/contact.html](http://www.gemalto.com/training/contact.html)