

# EMV Training and Consultancy

## EMV training course

Delivered by EMV experts to give your team the knowledge they need to make your EMV work successful



**VISA**



**DISCOVER**  
NETWORK



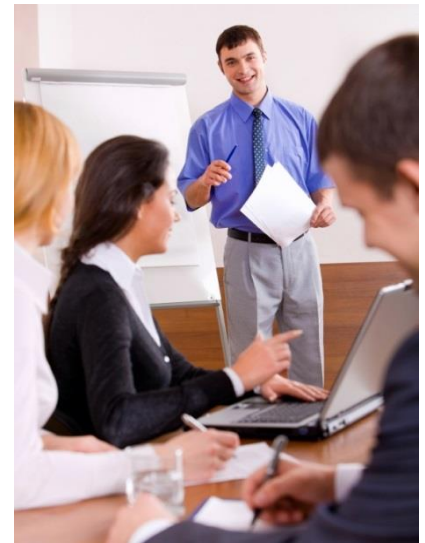
The standard Barnes International EMV training course takes 3 days and is customised to meet the requirements of each audience. We normally train up to 15 - 20 persons in the course, since this allows for fuller discussions in a less formal environment. The cut-off point for each day will be dependent on the amount of discussion and debate generated by the sessions.

Clients are given an understanding of the whole EMV picture.

The Barnes CPT 3000v3 EMV Chip Card Personalisation Validation Test Tool is used during the EMV training course to provide practical examples and demonstrations of EMV transactions and associated data elements. It also provides a basis for further discussion of personalisation issues.

The course comprises 8 modules. As standard, module 3 (EMV Card Applications) covers Visa and Mastercard contact and contactless card applications.

The course includes a training manual for each attendee, containing all slides and related documentation.



### Who should attend this course?

This course is suitable for any personnel who need a thorough grounding in EMV chip card technology, including:

- Business Analysts
- EMV Project Managers
- System Support & Development
- Fraud & Customer Service
- IT Security Specialists

### Consulting Services

As well as the formal training course, our consultants' wide experience of the chip card industry can be used to advise clients in related areas, such as:

- Cryptographic key management
- System design and review
- Business requirements definition of card data values
- Testing of personalised EMV cards

# EMV Training Outline



**THE BARNES ADVANTAGE**  
Barnes is the chosen partner of Banks & Issuers, Card Manufacturers, Personalisation Bureaus and Test Laboratories worldwide.

Here are some reasons why:

## COST ELIMINATION

The high business costs and wasted resources of producing and issuing invalid cards are eliminated.

## RISK REDUCTION

The reputational risk of issuing invalid EMV cards to end customers is reduced.

## FUTURE PROOFED

Barnes works in partnership with all major payment schemes. As scheme rules evolve, Barnes rapidly make updated test script packs available to customers via the Barnes website.

## SERVICE EXCELLENCE

Our clients have every confidence that whatever their test requirement, the Barnes team is always on-hand to deliver expert advice, training, consultancy and fast support.

## BUSINESS AGILITY

Barnes test tools are easy to use by both technical and non-technical users, and speed up card development and payment scheme certification.

## Module 1: EMV Overview

This module provides the necessary background to the course, emphasising the business drivers behind EMV developments.

- Magnetic stripe card/signature legacy
- Rationale of EMV & EMVCo
- High-level functions & requirements
- Range of EMV specifications (contact & contactless)
- Certification & Type Approval
- Role of the Payment Systems (Card Schemes)
- Current & Future developments

## Module 2: EMV Transaction Flow

This module looks at a typical EMV transaction, covering both the functions carried out, and the way that, by setting parameter values, the issuer can control the transaction.

- Sequence of functional steps in a transaction
- Step-by-step transaction flow
- EMV parameters and their usage
- Examples from CPT3000v3 test tool
- Issuer host processing of EMV transaction data

## Module 3: EMV Card Applications (contact & contactless)

This module examines the appropriate card applications, focusing on the application-specific features and parameters.

- Applications covered – Visa VSDC qVSDC and Mastercard M/Chip. American Express and/or Discover can be covered upon request.
- Application-specific parameters & their usage – with examples
- Transaction flow (application-specific processes)
- Discussion on parameter settings

## Module 4: Chip Card Structure

This module takes a general look at chip hardware and software platforms.

- Chip technology (processors, memory)
- Card Operating Systems & Virtual Machines
- Card application development & open platforms
- Card application personalisation
- Multi-application cards

## Module 5: EMV Fraud Prevention

One of the major benefits of EMV is the proven ability to reduce fraud losses. This module examines the various ways that EMV cards and systems achieve this.

- Types of card fraud to be countered
- Role of EMV on-line and off-line authentication features
- Role of Card Risk Management
- Role of Issuer Host systems

## Module 6: EMV Cryptography & Key Management

Cryptography plays an essential role in protecting EMV transactions and reducing losses. This module shows what lies behind the high level of EMV security.

- Symmetric & Asymmetric Key Cryptography Overview
- Symmetric & Asymmetric Key Management
- EMV Symmetric Key functions (card-to-issuer host)
- EMV Asymmetric/Public Key functions (card-to-terminal)
- EMV SDA, DDA and CDA Authentication processes
- Cryptography for Offline PIN Encipherment

## Module 7: EMV Card Personalisation

In order to maximise the benefits of EMV, it is necessary to be sure that the card data is appropriately personalised to reflect the requirements of the card product, the card acceptance environment, the risks involved and the issuer host systems capabilities.

- Magnetic Stripe Card Personalisation Overview
- EMV Chip Card Personalisation Overview
- Personalisation Process Overview
- Issuance models
- EMV Card Testing Overview

## Module 8: EMV Card Personalisation Testing

The functions and benefits of card personalisation testing are explored, using the Barnes CPT 3000v3 card personalisation validation tool to provide examples and live demonstrations. Analysing the test tool results uses knowledge acquired from the previous modules of the course.

- Introduction to EMV Card Validation Tool
- Home Screen, Operations and Test Reports
- Test Demonstrations & Reviews
- Intro to Test Scenarios & Parameters