

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

The EMV training course takes three days. The course is customised to meet the requirements of the audience, which may cause the duration of the course to be extended. We normally train up to twelve people, since this allows for fuller discussions in a less formal environment.

The course comprises eight modules (see overleaf). The first module (EMV Overview) is suitable for a wider audience including non-technical staff.

The standard version of Module 3 (EMV Card Applications) covers Visa and Mastercard contact & contactless card applications. The scope of this module can be extended by arrangement.

Our trainers are experts, with first-hand experience of implementing EMV.

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 Chip Card Training Outline



THE BARNES ADVANTAGE

Barnes is the chosen partner of Banks & Issuers, Card Manufacturers, Personalisation Bureaux 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)
- Role of NFC Mobile Devices

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 reports
- Issuer host processing of EMV transaction data
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Module 3: EMV Card Applications (contact & contactless)

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

- Applications covered (contact & contactless) – Visa & Mastercard, also Amex, Discover, and/or RuPay if required
- Application-specific parameters & their usage – with examples
- Transaction flow (application-specific steps)
- 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 authentication features
- Role of Card Risk Management
- Role of Issuer host systems

Module 6: EMV Cryptography & Key

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

- Symmetric & Asymmetric Key Cryptography
- Cryptographic Algorithms
- EMV Symmetric Key functions (card-issuer host)
- EMV Asymmetric/Public Key functions (card – terminal) - SDA, DDA, CDA & PIN Encipherment
- Role of Certification Authority
- Role of Issuer/Acquirer/Personalisation Bureau

Module 7: EMV Card Personalisation

To maximise the benefits of EMV it is important that the cards are suitably personalised.

- Categories of Personalisation Data
 - EMV Application Templates
 - Application Data Profiles
 - EMV Cardholder Data
 - Cryptographic Generated Data
- Card Personalisation Processes
- Data Preparation
- Card Personalisation
- Card Testing – with examples

Module 8: Card Personalisation Testing

The functions and benefits of card personalisation testing are explored, using the Barnes CPT 3000v3 test tool to provide examples and live demonstrations.

- Introduction to the Barnes EMV Card Validation Tool
- Home screen, Operations & Test Reports
- Test demonstrations & reviews
- Test Scenarios & Parameters
- Further Live Demonstrations and reviews