

eclipseina

# EMBEDDED ACADEMY

Description of the offered courses

March 2025



# 1 Embedded Academy

Eclipseina was founded in 2013 to facilitate our customers’ work in the embedded environment and to support the successful software development from both a technical and an organizational point of view.






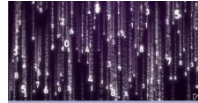













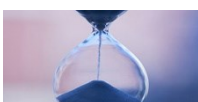



The Embedded Academy is one of the company’s strong brands. It provides basic and in-depth knowledge about all essential topics in the area of embedded software development.

An additional specific focus lies on the field of automotive in general as well as the sector of electric mobility, in particular electric charging.

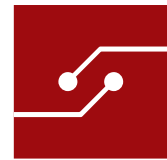
# 2 What does the Embedded Academy offer?

The Embedded Academy e-learning platform offers high quality e-learning units, which are based on expert knowledge, collaboration with industrial key players and precise research.

The portfolio covers a wide range of topics in the field of electronics, electrical engineering, e-mobility, embedded systems, and software.

 Automotive Bus Systems	 Automotive Cybersecurity	 AUTOSAR	 Battery and Battery Systems	 Control of Electrical Machines	 Cryptography
 Cyclic Redundancy Check	 E-Mobility	 Electrical Machines	 Electrified Powertrain	 Electronics and Electrical Fundamentals	 Embedded Software Basics
 EV Charging	 Information Security	 Serial Bus Systems	 Measurement Technology	 Noise, Vibration and Harshness for Vehicles	 Operating System OS
 Power Electronics Fundamentals	 Real-Time Operating System RTOS	 V3.1 - ASPICE Overview	 V4.0 - ASPICE	 Vector Control	...

The individual units are characterized by a balanced degree of technical detail and didactic reduction as well as a clear expression in design and language.



In addition, the e-learning units are devised in a modular structure and have an interactive design. Digital learning with the Embedded Academy's e-learning portfolio offers the advantage of comprehensive flexibility. Courses can be accessed at any time, from any location. The ability to repeat content as often as desired allows to learn at an individual pace and thus ensures best learning results.

Through up-to-date and practice-relevant courses in combination with additional features such as a list of explained abbreviations and a glossary that provides valuable background knowledge.

## 2.1 E-learning Content

The e-learning portfolio of the Embedded Academy includes various courses from technical domains such as electronics, electrical engineering, embedded systems, and software as well as automotive and electromobility. Each course is divided into individual training chapters. A detailed list of the respective training chapters and their contents can be found on our website:

<https://embedded-academy.com/en/e-learning-portfolio/>

Currently the following e-learning are part of the portfolio:

### 1) Automotive Bus Systems

- Language: English, German
- Course objective: This course is aimed at all developers who already use automotive bus systems, want to use them or want to learn how they are structured.
- Course content: In this course you will learn about different bus systems that are mainly used in the automotive environment. You will be introduced to the SENT - single edge nibble transmission - protocol including general information, concept, structure and a data example.
- Duration: 45 minutes
- Study time: 3 hours, 45 minutes
- Further insights: <https://embedded-academy.com/en/courses/automotive-bus-systems-en/>

### 2) Automotive Cybersecurity

- Language: English
- Course objective: The aim of this course is to get an overview of what is relevant in the topic of automotive cybersecurity. The learner will be aware why automotive cybersecurity is important and how it is regulated, implemented, and controlled.
- Course content: In the first e-learning unit of this course, you learn why **automotive cybersecurity** matters. You get introduced to the main reasons for the implementation as well as the top attack points. In the following, you get to know the upcoming regulations and standards as well as the role of cybersecurity in the product life cycle. Then, you get to know the cybersecurity threat analysis and risk assessment, also known as TARA. It is explained through an example so it is easy to understand. At the end of this course, you will learn what the cybersecurity controls and requirements are and you will take a closer look at the cybersecurity verification and validation testing.
- Duration: 60 minutes

- Study time: 5 hours
- Further insights: <https://embedded-academy.com/en/courses/automotive-cybersecurity-en/>

### 3) AUTOSAR

- Language: English
- Course objective: The aim of this course is to understand what AUTOSAR™ is so that you are able to develop software related to AUTOSAR™.
- Course content: The course introduces AUTOSAR™ as an organization, explains the standard it defines and addresses the methodology as well as the classic platform from the release R19-11. Learners can start with the **overview** e-learning, which introduces AUTOSAR™ as an organization and explains the standard it defines. In particular, there will be details about the different standards AUTOSAR™ contains.  
Another e-learning addresses the **classic platform** from the release R19-11. There we take a look at the methodology as well as the software architecture. The methodology describes how one proceeds when developing a system with AUTOSAR™ and the software architecture describes the different layers of the layered software architecture.  
The e-learning about the **virtual functional bus** explain the main communication concept of the classic platform.  
And we also offer an e-learning about the **operating system** of AUTOSAR Classic Platform.
- Duration: 3 hours, 50 minutes
- Study time: 19 hours, 10 minutes
- Further insights: <https://embedded-academy.com/en/courses/autosar-en/>

### 4) Battery and Battery Systems

- Language: English
- Course objective: The objective of this course is to gain a better understanding of the design and control of battery systems.
- Course content: In the first e-learning, we get to know the **battery cell** itself in more detail. We learn what materials it can be made of and how it works when it is charged and discharged. At the end, we will look at the parameters that influence the battery's performance. The second e-learning is about the **battery system** of an electric vehicle, different cell types and battery safety. We take a look at the 48V battery as an example.
- Duration: 1 hour, 30 minutes
- Study time: 7 hours, 30 minutes
- Further insights: <https://embedded-academy.com/en/courses/battery-and-battery-system-fundamentals/>

## 5) Bridge Circuits

- Language: English, German
- Course objective: The course focuses on the most important bridge circuits currently used in industry. The aim is to identify, understand and use the circuits.
- Course content: The e-learning course on bridge circuits first provides a **basic introduction** to the topic. The structure of the circuit is explained, as well as the calculation of the important variables and typical applications.
- Duration: 35 minutes
- Study time: 2 hours, 55 minutes
- Further insights: <https://embedded-academy.com/de/Kurse/brueckenschaltungen/>

## 6) Charging communication between EV and EVSE

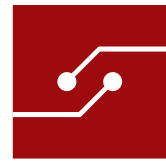
- Language: English, German
- Course objective: The aim of this course is to educate the learner about the more advanced topic of communication in electric vehicle charging.
- Course content: The focus of the two e-learning is then on **communication** in electric vehicle charging. Therefore, first the concepts of the pilot signal and the duty cycle are introduced, before various communication mechanisms are described, the **low-level and high-level communication** for instance. Low level communication is, roughly speaking, the basic handshake, while high-level communication involves the transmission of much more data – including encrypted data.
- Duration: 50 minutes
- Study time: 4 hours, 10 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/charging-communication-between-ev-and-evse/>

## 7) Control of Electrical Machines

- Language: English
- Course objective: The objective of this course is to impart knowledge on the control of electrical machines.

Course content: In the e-learning on **field-oriented control**, we look at some basic physical concepts (torque, electromagnetic force) and consider them in relation to the DC motor. This also includes torque control. Discussing field-oriented control then allows us to understand how to incorporate this concept into electric control. We then move on to actually focus on electrical machines as controlled systems as well as the inverter as a control actuator. A short outlook on other machine types is also included.

The e-learning on **control design** focusses first on the procedure of control parameterization. This includes topics such as decoupling, pre-control, simplification of the mathematical description,



and control optimization methods. This is followed by the cascaded control, where we also discuss current control vs. torque control, field-weakening control, anti-shuffle control and speed control.

- Duration: 3 hours
- Study time: 15 hours
- Further insights:  
<https://embedded-academy.com/en/courses/control-of-electrical-machines/>

## 8) Cryptography

- Language: English, German
- Course objective: The aim of this course is to understand the various encryption methods, how they are used, and which mechanisms are most useful for which application during implementation.
- Course content: The course on cryptography is divided into two parts.  
First, the focus is on **classical cryptography**, presented in three e-learning. We begin with a general introduction to the topic, which is followed by a historical overview. Thereby, we will encounter the most famous classical encryption methods: the Scytale, the Caesar Cipher, the Vigenère Cipher, the One-Time Pad and the Enigma.  
The second part then moves on from this historical encryption to **modern methods**, also divided into three e-learning. Here, using the example of Alice and Bob, A to B encryption from the sender (A) to receiver (B) is explained for the three basic types (symmetric, asymmetric, and hybrid) and further illuminated using concrete methods such as the DES (Data Encryption Standard), AES (Advanced Encryption Standard), RSA (Rivest–Shamir–Adleman) and the Diffie-Hellman Key Exchange.
- Duration: 4 hours
- Study time: 20 hours
- Further insights: <https://embedded-academy.com/en/courses/cryptography/>

## 9) Cyclic Redundancy Check CRC

- Language: German, English
- Course objective: The aim of this course is to understand how to calculate various CRC checksums
- Course content: The e-learning course consists of three e-learning units:  
"CRC Definition," "CRC-8," and "CRC-16." In this course, you will acquire the necessary knowledge to understand the calculation of CRC checksums. The first module imparts the definition and function of the CRC checksum. The modules are organized in ascending order of CRC sums, and the calculations are always explained using examples.  
In the "**CRC Definition**" module, we uncover its significance, explore various CRC lengths, and delve into its principles, including functionality, polynomial representation, and generator polynomial.  
In "**E-Learning CRC-8**," we delve deeper into CRC-8 calculation, explaining steps with examples. Explore how the sender generates the CRC-8 checksum and how the receiver verifies message accuracy.



Continuing the journey, "CRC-16" explores CRC-16 calculation through detailed examples. Learn how CRC-16 is generated and verified, addressing diverse message lengths. Whether new to CRC or seeking a deep dive, this course empowers your understanding.

- Duration: 1 hour, 20 minutes
- Study time: 6 hours, 40 minutes
- Further insights: <https://embedded-academy.com/en/courses/cyclic-redundancy-check-crc/>

## 10) Electric Vehicle System

- Language: English
- Course objective: The aim of this course is to introduce you to the overall view on the electric vehicle system.
- Course content: Electric vehicle system concentrates on the system architecture and elements of the system powertrain. This includes discussing basic electric drive system design, considering aspects of functional safety and highlighting various elements of the system energy management.
- Duration: 1 hour, 10 minutes
- Study time: 5 hours, 50 minutes
- Further insights: <https://embedded-academy.com/en/courses/e-mobility/>

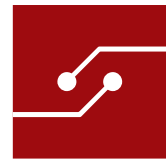
## 11) E-Mobility

- Language: English
- Course objective: The aim of this course is to introduce you to the topic of electric vehicles.
- Course content: The e-learning introduce the user to different topics relevant to understand the relevance and scope of e-mobility.

First of all, the learner will be **introduced** to the correct terminology to talk about this topic. We will have a look at which trends influenced the growth of electric mobility and how this might have changed the (automotive) market. This also includes highlighting the different use cases of electric vehicles and explaining the model of the total cost of ownership (TCO), which allows for a calculation of the total costs of a vehicle during its lifetime.

The next e-learning then focusses more closely on **charging** itself. The basics of EV charging will be explained, as well as different charging standards and modes, charging plugs or bidirectional charging.

- Duration: 1 hour, 20 minutes
- Study time: 6 hours, 40 minutes
- Further insights: <https://embedded-academy.com/en/courses/e-mobility/>



## 12) Electrical Machines

- Language: English
- Course objective: The aim of this course is to introduce the learner to electrical machines and provide information about important machine types.
- Course content: The first e-learning of this course gives an **introduction** into the basics of electrical machines where some general information is presented. Afterwards, four e-learning offer an overview on different machine types:  
**Permanent Magnet Synchronous Machine (PSM)** provides you with the most important aspects concerning this machine including information on torque characteristics and losses.  
**Synchronous Machines (SM)** are explained using a similar structure also including a look at single losses.  
**Induction Machines (IM)** are explained using a similar structure. At the end of this e-learning a comparison of different induction machines is provided.  
**DC & Brushless DC Machines** and the final machine types which is covered by this e-learning course.
- Duration: 2 hours
- Study time: 10 hours
- Further insights: <https://embedded-academy.com/en/courses/electrical-machines/>

## 13) Electrified Powertrain

- Language: English
- Course objective: The aim of this course is to provide knowledge on different topics relevant for the field of the electrified powertrain of electric vehicles.
- Course content: The e-learning on **power electronics** will introduce the main elements of an electric circuit, their pros and cons and other semiconductor devices. We will focus on the half-bridge as a central element in power electronics before giving an outlook on thermal design and assembly. Next, an e-learning on the **basics of electrical machines** introduces you to the different types of electrical machines relevant for the electrified powertrain and approaches their application in practice.  
In addition to the e-learning on electrical machines, there is an introductory e-learning on the **control of electrical machines** available, which shortly explains some basics of control systems (system theory, time domain / frequency domain, transfer functions) as well as some basic principles of AC and DC machines. It closes by discussing some elements of control design and strategy.  
In the e-learning “**Battery and BMS**”, we center on the battery with a focus on electric vehicle application. This includes an introduction into the anatomy of the battery (chemistry, classification, pack structure) as well as a discussion of battery management systems, short BMS.
- Duration: 4 hours, 45 minutes
- Study time: 23 hours, 45 minutes
- Further insights: <https://embedded-academy.com/en/courses/electrified-powertrain/>



#### 14) Electronics and Electrical Fundamentals

- Language: English
- Course objective: The aim of this course is to provide a basic technical understanding of all relevant topics in the area of electronics and electricity.
- Course content: The first e-learning unit of this course is called “**Electronics and Magnetism**”. It covers the relationship between current, voltage and resistance, which is expressed by Ohm’s law. In addition, electric and magnetic fields are contrasted and different types of magnets are considered. The second e-learning unit deals with the **important components of a circuit**, the capacitor and the coil, as well as the resulting phenomena and physical laws, the Lorentz Force, the Hall Effect and the principle of induction.  
Furthermore, **direct current and alternating current** are analyzed. For the analysis of circuits, Kirchhoff’s Laws and the circuit types parallel circuit and series circuit are explained. With regard to alternating current, the Star connection and the Delta connection are considered.  
The topic of **AC circuits** is covered in greater detail. Therefore, the complex numbers are explained in order to then discuss the complex voltage and the complex current. Furthermore, this chapter covers the impedance and the Root Mean Square.  
The last part of the e-learning contains an introduction to **power electronics**, which is based on semiconductor elements. In addition to teaching technical basics, it explains how various components can be constructed using semiconductors. Here, special attention is paid to the diode and the MOSFET. The user is therefore familiarized with the concept of the p-n-junction.
- Duration: 3 hours, 10 minutes
- Study time: 15 hours, 50 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/electronics-and-electrical-fundamentals/>

#### 15) Embedded Software Basics

- Language: English, German
- Course objective: The aim of this course is to provide a sound basic knowledge on which other topics, such as AUTOSAR, can build.
- Course content: This course provides an e-learning on **fixed point arithmetic** and on **floating point arithmetic**. Two ways of storing binary numbers are described, and limitations and typical errors of the methods are explained. This helps to avoid beginner mistakes and enables a quick introduction to the basics of embedded software.
- Duration: 1 hours, 15 minutes
- Study time: 6 hours, 15 minutes
- Further insights: <https://embedded-academy.com/en/courses/embedded-software-basics/>

## 16) Encryption Methods

- Language: English, German
- Course objective: The aim of this course is to understand the various encryption methods which are commonly used in modern cryptography.
- Course content: In this course we introduce you to different symmetric and asymmetric encryption methods namely DES (Data Encryption Standard), AES (Advanced Encryption Standard), RSA (Rivest Shamir Adleman) and the Diffie-Hellman Key Exchange.
- Duration: 1 hour, 55 minutes
- Study time: 9 hours, 35 minutes
- Further insights: <https://embedded-academy.com/en/courses/cryptography/>

## 17) EV Charging

- Language: English
- Course objective: The aim of this course is to first introduce the learner to all important aspects of electric vehicle charging and then educate them about the more advanced topic of communication in electric vehicle charging.
- Course content: First of all, the learner is made familiar with the **basics** of EV charging (charging modes, standards, levels). Afterwards, one e-learning focusses in particular on **automated charging**. To place EV charging into relation to our everyday life, **use cases** of EV charging are discussed as well. Moreover, it is also important to be informed about the **grid interaction**, which includes topics such as energy production and green energy.

The focus of the next two e-learning is then on **communication** in electric vehicle charging. Therefore, first the concepts of the pilot signal and the duty cycle are introduced, before various communication mechanisms are described, the **low-level and high-level communication** for instance. Low level communication is, roughly speaking, the basic handshake, while high-level communication involves the transmission of much more data – including encrypted data.

- Duration: 2 hours, 15 minutes
- Study time: 11 hours, 15 minutes
- Further insights: <https://embedded-academy.com/en/courses/ev-charging/>

## 18) EV Charging Fundamentals

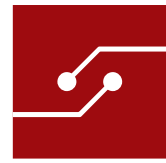
- Language: English
- Course objective: The aim of this course is to introduce the learner to all important aspects of electric vehicle charging.
- Course content: First of all, the learner is made familiar with the **basics** of EV charging (charging modes, standards, levels). Afterwards, one e-learning focusses in particular on **automated charging**. To place EV charging into relation to our everyday life, **use cases** of EV charging are discussed as well. Moreover, it is also important to be informed about the **grid interaction**, which includes topics such as energy production and green energy.
- Duration: 1 hours, 30 minutes
- Study time: 7 hours, 5 minutes
- Further insights: <https://embedded-academy.com/en/courses/ev-charging-fundamentals/>

## 19) Information Security

- Language: English, German
- Course objective: The aim of this course is to provide an overview of information security so that its interrelationships and importance become clear.
- Course content: The course is divided into 3 parts. First, important terms of information security are defined and the underlying goals are explained. Furthermore, it is clarified who is affected by information security and what it is needed for.  
In the second e-learning unit, the practical implementation of information security is explained. Here, risks and threats are presented and explained using examples. Afterwards, the information security management system is defined and its functioning is explained. The introduction of this system is, among other things, the task of the information security officer.  
Finally, direct measures are explained based on the 14 reference measure objectives, using the international standard ISO 27001 as a source.
- Duration: 1 hour
- Study time: 5 hours
- Further insights: <https://embedded-academy.com/en/courses/information-security-en/>

## 20) Introduction to Cryptography

- Language: English, German
- Course objective: The aim of this course is to understand the various encryption methods, how they are used, and which mechanisms are most useful for which application during implementation.
- Course content: We begin with a general introduction to the topic including the explanation of the protagonists specially Alice and Bob.



Then we move on to explain the three basic types symmetric encryption, asymmetric encryption and hybrid encryption.

- Duration: 1 hour, 15 minutes
- Study time: 6 hours, 15 minutes
- Further insights: <https://embedded-academy.com/en/courses/cryptography/>

## 21) Mathematics in Encryption

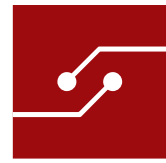
- Language: English, German
- Course objective: The aim of this course is to provide the mathematical basis for understanding the encryption methods.
- Course content: This e-learning explains important mathematical basics that are required for cryptography. In the following chapters, we explain some of the important concepts that are necessary to understand the encryption and decryption methods: First, the terms substitution and permutation are explained, then the mathematical background of function and inverse function is illustrated and finally you will be introduced to XOR and modulo.
- Duration: 40 minutes
- Study time: 3 hours, 20 minutes
- Further insights: <https://embedded-academy.com/en/courses/cryptography/>

## 22) Measurement Technology Using Strain Gauges – Basic Course

- Language: English, German
- Course objective: The aim of this course is to be able to perform a measurement with strain gauges. This course forms the basis for the video course which is presenting examples of practical application of the strain gauges know-how in practice.
- Course content: The e-learning course starts with an **introduction** to the subject, which enables newcomers and career changers to get to know all the important terms and contexts. It then covers the **basic physics** relevant to understanding how a strain gauge works as well as how to measure with it.

This is followed by a detailed discussion of the Wheatstone bridge, which is important for making measurements with strain gauges. This is followed by a discussion of how strain gauges must be positioned in order to measure certain physical quantities and the types of designs that result. At the end, it is explained how to install electrical foil strain gauges.

- Duration: 1 hour, 5 minutes
- Study time: 5 hours, 25 minutes
- Further insights: <https://embedded-academy.com/en/courses/strain-gauges-en/>



### 23) Noise, Vibration and Harshness (NVH) for Vehicles

- Language: English
- Course objective: The aim of this course is to introduce you to the basics of Noise, Vibration and Harshness with are relevant in the context of electric vehicles.
- Course content: In in this course, we will focus on basics of NVH relevant for the electrified power-train. We will explain the physical description of sound, the relation between sound pressure, sound intensity and SPL as well as look at psychoacoustics and some aspects of sound design as well as noise propagation.
- Duration: 55 minutes
- Study time: 4 hours, 35 minutes
- Further insights: <https://embedded-academy.com/en/courses/noise-vibration-and-harshness-nvh-for-vehicles/>

### 24) Operating System

- Language: English
- Course objective: The aim of this course is to provide a basic knowledge of operating systems and the various components and functions they contain.
- Course content: In this course, you learn what an operating system is. Therefore, you are familiarized with the kernel, which holds the core functionality of the operating system and you get to know the scheduler, which controls the execution of multiple tasks and allocates resources to them. This is covered in greater detail in the chapter “Multitasking”. To complete this course, safety and other advanced aspects are covered as well as the characteristics of embedded operating systems.
- Duration: 1 hour, 5 minutes
- Study time: 5 hours, 25 minutes
- Further insights: <https://embedded-academy.com/en/courses/operating-system/>

### 25) Power Electronics Fundamentals

- Language: English
- Course objective: The aim of this course is to provide a better understanding of power electronics fundamentals for engineers who are beginning to work in this field.
- Course content: In the first e-learning we clarify what **power electronics** is and where it is applied. It also includes an explanation of the electronic switch. We deal with an example of an electronic circuit, from which we derive basic components. In the e-learning “**Components** of Power Electronics” you learn about the semiconductor basics and components including MOSFETs and IGBT. The third e-learning is about the **half bridge**, that is used to control AC electrical machines and the last e-learning covers the topic of **thermal design and assembly**.
- Duration: 2 hours, 25 minutes
- Study time: 12 hours, 5 minutes

- Further insights:  
<https://embedded-academy.com/en/courses/power-electronics-fundamentals/>

## 26) Real-Time Operating System

- Language: English
- Course objective: The aim of this course is to provide a basic knowledge of real-time operating systems. The learner will understand what a real-time operating system is and how it works.
- Course content: You will learn when real-time operating systems are needed and which requirements they have. In particular, we cover the difference between soft real-time requirements and hard real-time requirements. You will also encounter the term “timing analysis” and learn about the difference between time-based tasks and event-based tasks. At the end you will be familiarized with three scheduling algorithms, before we cover three typical problems: task starvation, deadlock and race conditions.
- Duration: 1 hour, 10 minutes
- Study time: 5 hours, 50 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/real-time-operating-system-en/>

## 27) Serial Bus Systems

- Language: English, German
- Course objective: The aim of this course is to introduce learners to all the important basic terms for the topic of serial bus systems.
- Course content: This course is designed to introduce you to important basic terms related to serial bus systems. Terms concerning hardware and software are explained.  
The focus of the first e-learning lies on very **general basic terms** that are relevant to most bus systems. For example, the terms bit rate, baud rate, latency, clock signal and router are explained, or what a protocol and a protocol stack actually are. At the beginning of the e-Learning, typical application areas of serial bus systems and their advantages over other systems are described.  
The second e-learning deals with the **OSI model**, which is a reference model for communication systems and protocols. Two components of this model are particularly relevant for bus systems: the so-called physical layer and the data link layer.  
The next two e-learning courses are based on these mentioned layers. One of them covers basic terms of the **physical layer**, the other one those of the **data link layer**.  
Last, but not least an introduction to cyclic redundancy check CRC is given.
- Duration: 2 hours, 50 minutes
- Study time: 14 hours, 10 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/introduction-to-serial-bus-systems-en/>

## 28) V3.1 ASPICE - 1 – Overview

- Language: English, German
- Course objective: The aim of this course is to understand ASPICE and to get to know the purpose of this standard.
- Course content: The course “V3.1 ASPICE – Overview” is divided into two e-learning units and provides basic knowledge about Automotive SPICE. The first E-Learning provides reasons that speak for **Automotive SPICE** and introduces further standards that are relevant to the topic of Automotive SPICE. The second E-Learning provides an overview of the contents of the **process model**. The Process Reference Model (PRM) and the Process Assessment Model (PAM) are explained in detail. The concept of the standard is explained using an example process.
- Duration: English: 1 hour, 5 minutes and German: 1 hour, 35 minutes
- Study time: English: 5 hours, 25 minutes and German: 7 hours, 55 minutes
- Further insights: <https://embedded-academy.com/en/courses/automotive-spice-overview/>

## 29) V3.1 ASPICE – Acquisition and Supply

- Language: English
- Course objective: The aim of this course is to understand ASPICE and to get detailed information about the supplier monitoring and product release.
- Course content: In this course we focus on the processes which are relevant for the VDA Scope as the VDA Scope is mandatory for more or less every automotive electronics and software projects. In addition, we consider the processes which will also be relevant for ASPICE 4.0. For the acquisition process group this applies to **Supplier Monitoring ACQ.4** as it is part of the VDA Scope and to the Product Release SPL.2 as it will also be relevant for ASPICE 4.0. At the beginning of the Supplier Monitoring ACQ.4 e-learning the respective process group ACQ is introduced and you get to know the connections between the different processes. The e-learning highlights the connection between different topics. This is particularly helpful for practical application work when processes and relationships need to be understood.  
The e-learning on **Process Release SPL.2** also starts with the introduction to the Supply Process Group SPL. Within the e-learning you will get to know all the details of the Product Release including process outcomes, work products and more.
- Duration: 1 hour, 15 minutes
- Study time: 6 hours, 15 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/automotive-spice-acquisition-and-supply-en/>

### 30) V3.1 ASPICE – Engineering

- Language: English
- Course objective: The aim of this course is to understand ASPICE and to get detailed information about the engineering processes.
- Course content: The course “V3.1 ASPICE – Engineering” is divided into four e-learning units. Each of them explains one or more processes. It covers all processes of the **System Engineering** Process Group SYS and the **Software Engineering** Group SWE.  
The first 2 parts are covering the system engineering processes starting with SYS.1: Requirements Elicitation, SYS.2: System Requirements Analysis and SYS.3: System Architectural Design and followed by SYS.4: System Integration and Integration Test as well as SYS.5: System Qualification Test. The final 2 parts are covering the software engineering processes starting with SWE.1: Software Requirements Analysis, SWE.2: Software Architectural Design, SWE.3: Software Detailed Design and Unit Construction. This is followed by the software processes dealing with integration and testing, namely SWE.4: Software Unit Verification, SWE.5: Software Integration and Integration Test as well as SWE.6: Software Qualification Test.
- Duration: 2 hours, 50 minutes
- Study time: 14 hours, 10 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/automotive-spice-engineering-en/>

### 31) V3.1 ASPICE – Management

- Language: English
- Course objective: The aim of this course is to understand ASPICE and to get detailed information about the management processes.
- Course content: The course “V3.1 ASPICE – Management” currently includes two e-learning covering the Management Process Group.  
The first e-learning talks about the **Project Management** Process MAN.3. It was included as it is part of the VDA scope, a required subset of the ASPICE processes which is essential for approval for production at German OEMs. After completing this e-learning, engineers will understand the ASPICE project management requirements.  
The second e-learning features the **Risk Management** Process MAN.5.
- Duration: 1 hour
- Study time: 5 hours
- Further insights:  
<https://embedded-academy.com/en/courses/automotive-spice-v3-1-management-en/>



### 32) V3.1 ASPICE – Supporting Processes

- Language: English
- Course objective: The aim of this course is to get detailed information about of Supporting Process Group and Supplier Monitoring of V3.1 ASPICE.
- Course content: In this course we focus on the processes which are part of the VDA Scope and thus mandatory for more or less every automotive electronics and software project. For the supporting processes this applies to Quality Assurance **SUP.1**, Configuration Management **SUP.8**, Problem Resolution Management **SUP.9**, and Change Request Management **SUP.10**. The course is divided into several e-learning units. Each of them covers one process and its work products. At the beginning of each e-learning the respective process group is introduced and you get to know the connections between the different processes. The e-learning highlight connection between different topics. This is particularly helpful for practical application work when processes and relationships need to be understood.
- Duration: 1 hour, 45 minutes
- Study time: 8 hours, 45 minutes
- Further insights: <https://embedded-academy.com/en/courses/automotive-spice-supporting-processes-en/>

### 33) V4.0 ASPICE – 1 – Overview

- Language: English
- Course objective: The target of this course is to understand V4.0 ASPICE and to get to know the purpose of this standard.
- Course content: The course “V4.0 ASPICE Overview” is structured into three e-learning units and provides you with a general knowledge about Automotive SPICE.  
The first e-learning presents a motivation for using Automotive SPICE and covers the process dimension of the process assessment model. It focuses in particular on the **measurement framework**. The most important aspects of the measurement framework are the capability levels, the process attributes and NPLF rating scale.  
The second e-learning provides an overview of the contents of the process dimension of process assessment model. In this e-learning, the **process reference model** is explained in detail.  
Finally, the concept of the standard is explained by using the **project management process** an example. This e-learning provides detailed information about the process purpose, the process outcomes, the base practices and the output information items.
- Duration: 1 hour, 40 minutes
- Study time: 8 hours, 20 minutes
- Further insights: <https://embedded-academy.com/en/courses/v4-0-aspice-1-overview/>

### 34) V4.0 ASPICE – Acquisition and Supply

- Language: English
- Course objective: The target of this course is to understand V4.0 ASPICE and to get detailed information about the supplier monitoring and the product release.
- Course content: In this course we provide e-learning units to the acquisition process group and the supply process group. The processes are Supplier Monitoring ACQ.4 and Product Release SPL.2.

At the beginning of the **Supplier Monitoring** ACQ.4 e-learning you get to know the connections between the different processes. The e-learning provides you with the details of the process itself, the base practices, and the output information items. It always highlights the connection between different topics. This is particularly helpful for practical application work when processes and relationships need to be understood.

The e-learning on **Product Release** SPL.2 also starts with the introduction to the Supply Process Group SPL. Within the e-learning you will get to know all the details of the Product Release including process outcomes, work products and more. The release note is the most complex output information item and is explained in detail.

- Duration: 1 hour, 25 minutes
- Study time: 7 hours, 5 minutes
- Further insights:  
<https://embedded-academy.com/en/courses/v4-0-aspice-acquisition-and-supply/>

### 35) V4.0 ASPICE – Management

- Language: English
- Course objective: The goal of this course is to understand ASPICE and to get detailed information about the management processes.
- Course content: The course “V4.0 ASPICE – Management” currently covers one e-learning for the first of the three processes within the Management Process Group.

The first e-learning is teaching you about the **Project Management** Process MAN.3. After completing this e-learning, engineers will understand the ASPICE project management requirements.

- Duration: 50 min
- Study time: 4 hours, 10 min
- Further insights:  
<https://embedded-academy.com/de/courses/v4-0-aspice-management/>

### 36) Vector Control

- Language: English
- Course objective: The aim of this course is to introduce the user to the basic information on vector control. This knowledge is essential for further topics, such as Electrical Machines.
- Course content: The vector control is based on the **Park and the Clarke Transformation**. In this e-learning, the reasons for using these transformations are discussed. By explaining the mathematical theory behind them, a solid understanding of the transformations themselves can be achieved which supports later application in practice.
- Duration: 55 minutes
- Study time: 4 hours, 35 minutes
- Further insights: <https://embedded-academy.com/en/courses/vector-control/>

### 37) User Manual

- Language: English, German
- In the user manual users get a short introduction on how to work on the e-learning of the Embedded Academy.
- Duration: 15 minutes
- Link: <https://embedded-academy.com/en/courses/embedded-academy-user-manual-english/>

The e-learning portfolio of the Embedded Academy is constantly being expanded. Further training units to the already existing e-learning as well as completely new e-learning courses are uploaded continuously. Users are informed about recent releases via e-mail and the newly integrated content is made available directly.

## 2.2 Technical requirements

You require an internet access throughout the learning process.

The e-learning run on all devices but we recommend using devices with larger screens such as laptops, computers, or bigger tablet computers.

## 2.3 License model

The customer receives a license code for each access purchased and a description on how to use the code.

After expiry of the acquired period of use the access to the e-learning platform expires.

## 2.4 References

You will find an excerpt of our customers at our homepage: <https://eclipseina.com/references>.

## 3 Service Management

### 3.1 Availability of support

We will provide you with all the necessary support:

- Mail: [training@eclipseina.com](mailto:training@eclipseina.com)
- Phone: +49 9404 3004160
- FAQs: <https://embedded-academy.com/en/fag/>
- User manual: <https://embedded-academy.com/lessons/user-manual-english>

### 3.2 Malfunction handling

If you are unhappy with the e-learning or something does not work, call us under +49 9404 3004160 or send us an e-mail at [training@eclipseina.com](mailto:training@eclipseina.com). We will try to help you immediately.

Eclipseina provides the e-learning content with an overall availability of at least 95%. The overall availability is calculated on the basis of the period covered by the contract in the respective calendar month minus maintenance work. Eclipseina is entitled to carry out maintenance work at any time on weekdays for a total of two hours per calendar month. Excluded from this are downtimes due to maintenance and software updates as well as periods during which the web server is not available on the internet due to technical or other problems beyond Eclipseina's sphere of influence.